1907-8

ORDER LIST FOR

PHYSICS LABORATORY EQUIPMENT

L. E. Knott Apparatus Co.
BOSTON, MASS.

After entering your order on enclosed, roll with this page outside, tie with a string, put on a stamp and mail to us.

RUSH ORDER DEPARTMENT.

L. E. KNOTT APPARATUS CO.,
16 Harcourt Street,
BOSTON, MASS.

STAMP

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225

VERY RARE!

Form 130-1-9

1907–8

ORDER LIST

OF

Physics Laboratory Equipment

To insure unusual despatch in shipment, make up your orders from this list. We will return this copy with the goods. All orders subject to acceptance by the Boston office.

Refer to Contents Table Page 3 and to Index at the back

L. E. KNOTT APPARATUS CO.,
15 to 17 HARCOURT STREET, BOSTON.

E. S. RITCHIE & SONS,
Physical and Meteorological Instruments

FRANKLIN LABORATORY SUPPLY CO.,
FRANKLIN EDUCATIONAL CO.
Biological and Chemical Apparatus

To Our Patrons—

For the convenience of our patrons we have constructed this **Price List of Physical Apparatus** in the form of an order sheet. It, of course, is conceded that a chance for a misunderstanding between customer and manufacturer is increased by the great variety of apparatus. To avoid misunderstanding and to insure prompt shipment, we suggest that all orders of several items should be entered on the sheets of this catalogue and the catalogue sent to us. Or, if preferred, the list may be copied from the catalogue.

When so required we will return the list to the writer. Or we will send a new order list with the goods.

See back cover for method of mailing.

We request you to fill out the form below when ordering.

ORDER

TO RUSH ORDER DEPARTMENT. *L. E. Knott Apparatus Co.*

Please enter subject to your usual terms our order for the goods marked on the succeeding pages. Ship by freight or express. (Which?)

We should like to have you return this list after copying our order. (?)

You may retain this list and send us a new one with the goods. (?)

Address the goods as follows:

Address the bill as follows:

I will request you to enter my name on your mailing list as follows:

Date

NOTE—Roll this pamphlet, with outside back cover for address, tie a string around, put on a stamp and mail to us.

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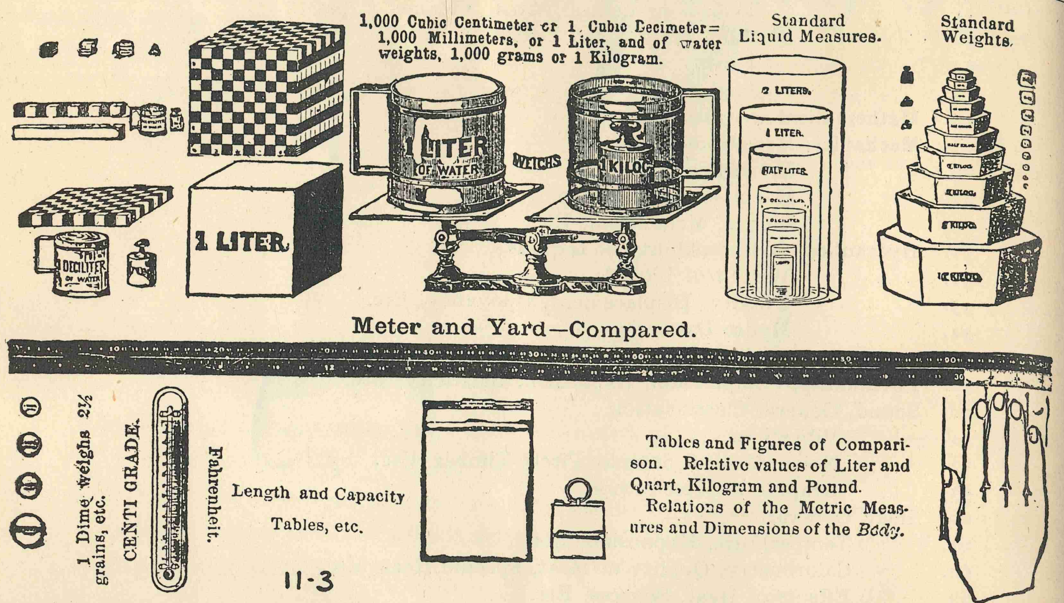
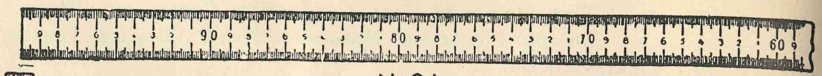

1,000 Cubic Centimeter or 1 Cubic Decimeter= 1,000 Millimeters, or 1 Liter, and of water weighs, 1,000 grams or 1 Kilogram.
Standard Liquid Measures.
Standard Weights.
1 LITER OF WATER
WEIGHS
1 KILOG
1 LITER.
2 LITERS
1 LITER.
HALF LITER
1 DECILITER OF WATER
1 KILOG
Meter and Yard—Compared.
1 Dime weighs 2½ grains, etc.
CENTI GRADE.
Fahrenheit.
Length and Capacity Tables, etc.
Tables and Figures of Comparison. Relative values of Liter and Quart, Kilogram and Pound. Relations of the Metric Measures and Dimensions of the Body.

11-3



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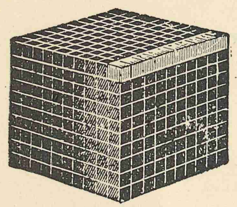

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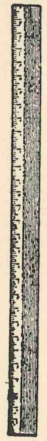

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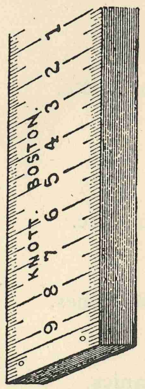
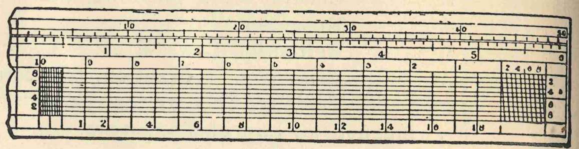

KNOTT. BOSTON.

11-33



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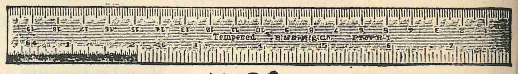

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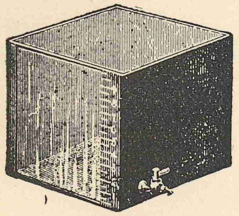

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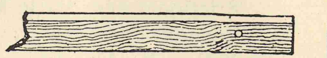

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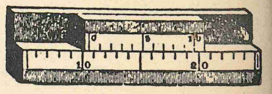

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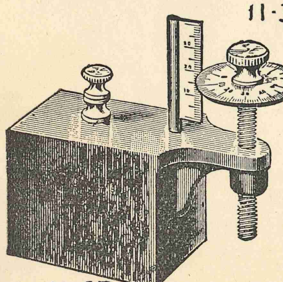

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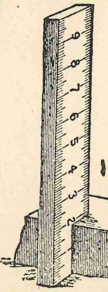
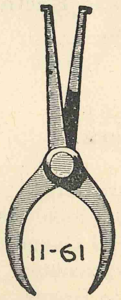

KNOTT BOSTON

11-45



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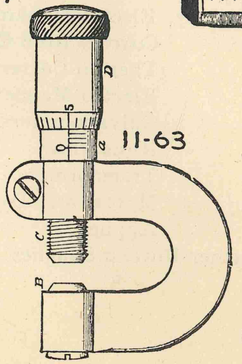

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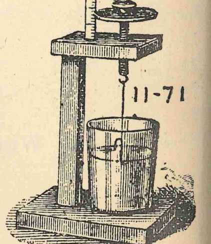


11-71

ORDER SHEET.

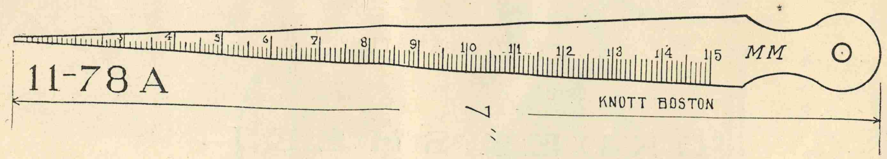
Mark the number wanted opposite each item in the column to the left. Mail direct to the Boston Office. This will be considered as a "Rush Order" and handled by the Rush Order Department.

SECTION 11, MEASUREMENT, GENERAL ITEMS.

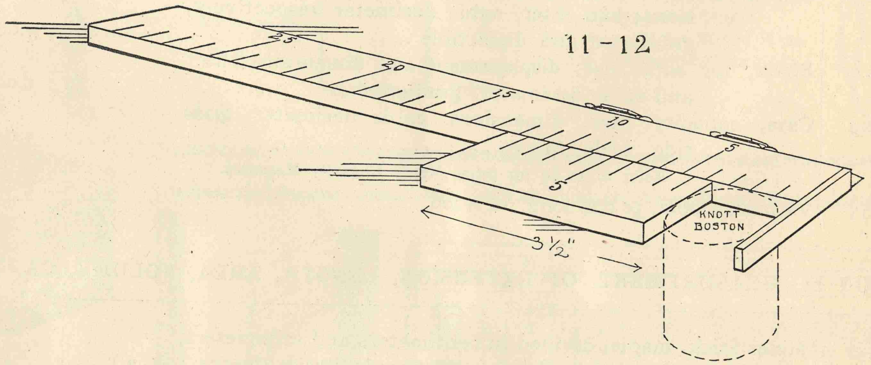
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	11-3	**Chart,** illustrating metric system of weights and measures	2.40	
	11-5	**Block,** for same use, **weight, displacement** and **dimensions;** kilo, liter, cubic decimeter respectively, graduated and dissectible	3.00	
	11-7	**Block,** for same use, **displacement** and **dimensions;** liter and cubic decimeter, graduated	1.00	
	11-9	**Case,** capacity liter, dimensions cubic decimeter, glass side, scale, faucet	3.00	
		Refer to 11-89 for other Metric Capacity Measures.		
	11-11	**Vernier,** model, 50 cm. long, on wood	1.10	

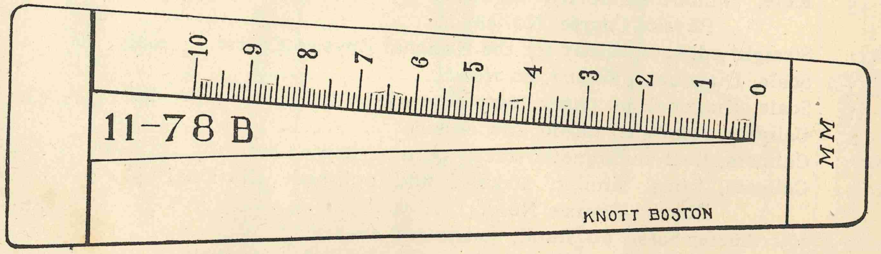
SECTION 11, MEASUREMENT OF EXTENSION, LENGTH, AREA, VOLUME, CAPACITY.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	11-31	**Meter Stick,** maple, divided in centimeters and millimeters, and inches in eighths, (National Physics Course, No. 2.)	.30	
	11-33	**Meter Stick,** brass tipped	.35	
	11-35	**Rule,** boxwood, 30 cm., in millimeters, inches in eighths, (National Physics Course, No. 3)	.12	
	11-37	**Rule,** maple, 30 cm. doz., .37	.05	
	11-39	**Rule,** steel, 15 cm., in mm., very accurate	.75	
	11-40	**Rule,** same as 11-41 on card per 100	2.00	
	11-41	**Rule,** Bond paper, 20 cm., in mm., very accurate per 100, 1.00		
	11-42	**Paper Scale,** one meter long each	.25	
	11-43	**Straight-edge** Rule, maple, graduated, 10 cm., in mm., (National Physics Course No. 1.)	.07	
	11-45	**Rule,** similar, supported vertically by a base, (National Physics Course, No. 58)	.16	
	11-47	**Straight-edge,** especially for the National Physics Course pair, .16		
	11-55	**Scale,** Diagonal, plotting, on wood.,	.10	
	11-57	**Scale,** Diagonal, on paper; very accurate per doz., .33		
	11-61	**Calipers,** combined inside and outside	.35	
	11-63	**Calipers,** steel, micrometer screw, 15 mm., in 0.01 mm	4.25	
	11-65	**Calipers,** brass, similar, nickeled and polished, (National Physics Course, No. 54)	3.25	
	11-67	**Micrometer Screw** on Stand, metric see 22-17	2.50	
	11-71	**Hook Gauge,** with hook and micrometer, according to Pickering, for exact measurement of liquid height	3.75	


11-78 A
MM
KNOTT BOSTON
7"
3
4
5
6
7
8
9
10
11
12
13
14
15

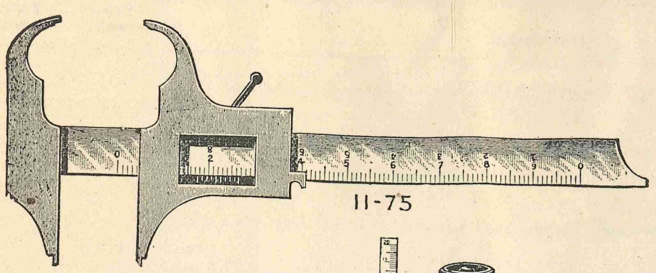
11-12


25
20
15
10
5
5
KNOTT BOSTON
3½"


11-78 B
10
9
8
7
6
5
4
3
2
1
0
MM
KNOTT BOSTON

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS		
	11-12	**New Model of Vernier and Caliper,** made for us from Boxwood with nickeled trimmings, of fine construction. Duty free	2.75	
	11-29	**½ Meter Stick,** similar to 11-33	.25	
	11-78a	**Taper Gauge** for **inside** measurements, of steel, from one to 15 mm in 1-10 mm each	1.25	
	11-78b	**Taper Gauge** for outside measurements, of steel, from one to 10 mm. in 1-10 mm each	2.25	

National Physics Note Book. Send for Particulars.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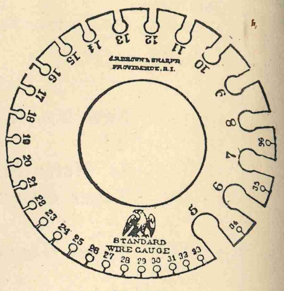
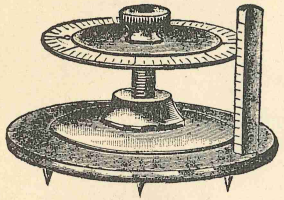

STANDARD WIRE GAUGE
J.R. BROWN & SHARPE PROVIDENCE, R.I.
11-79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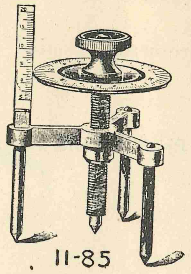
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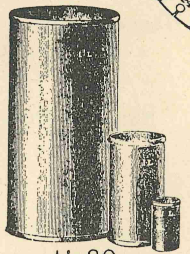
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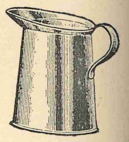
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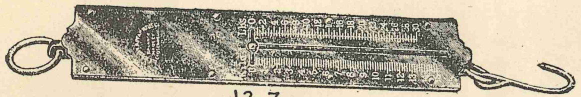
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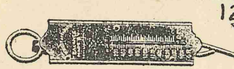
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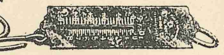
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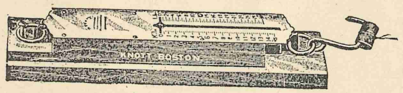

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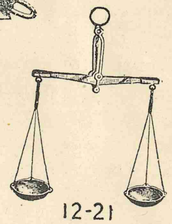
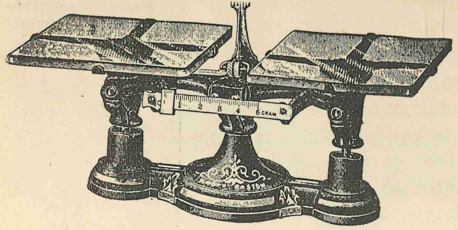

12-21

For Chemical Laboratory Balances Refer to our Order List of Chemical Laboratory Equipment.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	11-75	**Caliper,** vernier, 10 cm., millimeters to 0.1, for inside, outside and depth, with cam attachment	2.45	
	11-79	**Gauge,** wire, American Standard, Nos. 5 to 36	2.75	
	11-83	**Spherometer,** graduation 0.01 mm., diameter 50 mm	5.90	
	11-85	**Spherometer,** graduation 0.01 mm., diameter 40 mm	3.90	
	11-89	**Liquid Measures,** metric standards, brass ...set, 2.00		
	11-89a	1.0 liter	.90	
	11-89b	0.1 liter	.70	
	11-89c	0.01 liter	.40	
		For other illustrations of Metric System refer to 11-3 to 11-9.		
	11-95	**Liquid Measure,** English standard, 1 quart, copper	.90	

SECTION 12, MEASUREMENT OF MASS, WEIGHT, DENSITY, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	12-3	**Spring Balance,** double pointer, for vertical and horizontal readings, flat back, 250 grams in 10 gram divisions, and 8 ounces in ¼ ounce divisions, (National Physics Course, No. 7)	.80	
	12-4	**Spring Balance,** similar, 500 g. and 1 lb.	1.00	
	12-5	**Spring Balance,** double pointer, flat back, 2,000 grams and 64 ounces	.45	
	12-7	**Spring Balance,** double pointer, for vertical and horizontal reading, 15 kilos and 30 pounds, (National Physics Course, No. 50)	1.90	
	12-15	**Cradle,** for spring balance of 250 grams and 8 ounces, (National Physics Course, No. 22)	.12	
	12-17	**Cradle,** for spring balance of 15 kilos and 30 pounds, (National Physics Course No. 75)	.45	
	12-21	**Hand Balance,** 19 cm. beam, capacity 300 grams, sensibility 0.01 gram, horn pans, A1 quality	2.15	
	12-23	**Support,** for above to be used on a laboratory stand	.35	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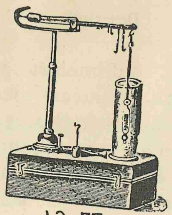
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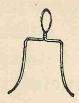
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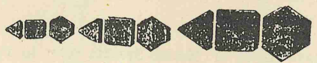
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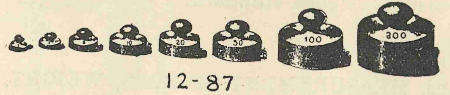

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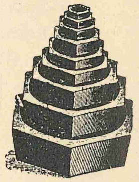
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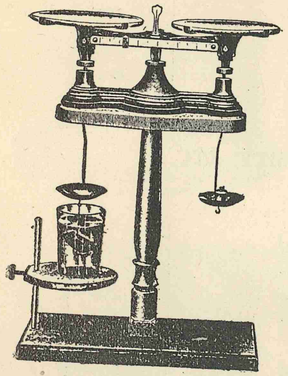
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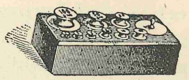
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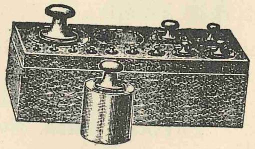
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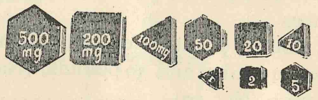

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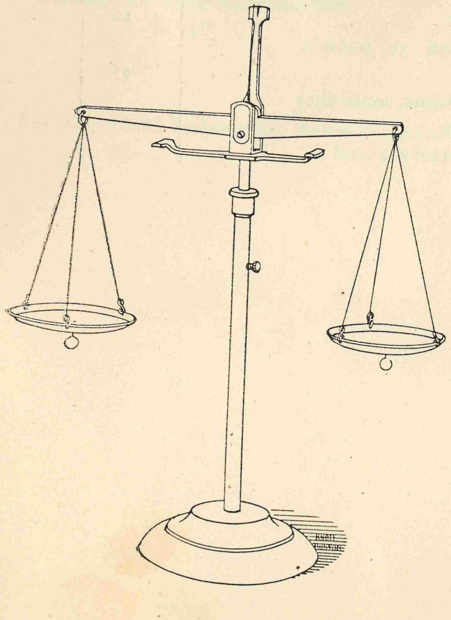
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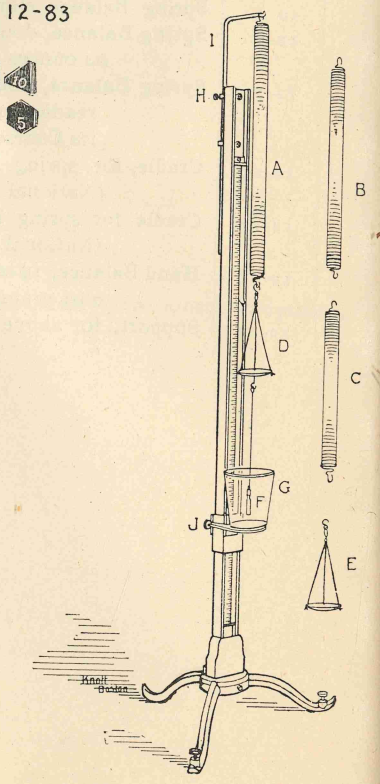
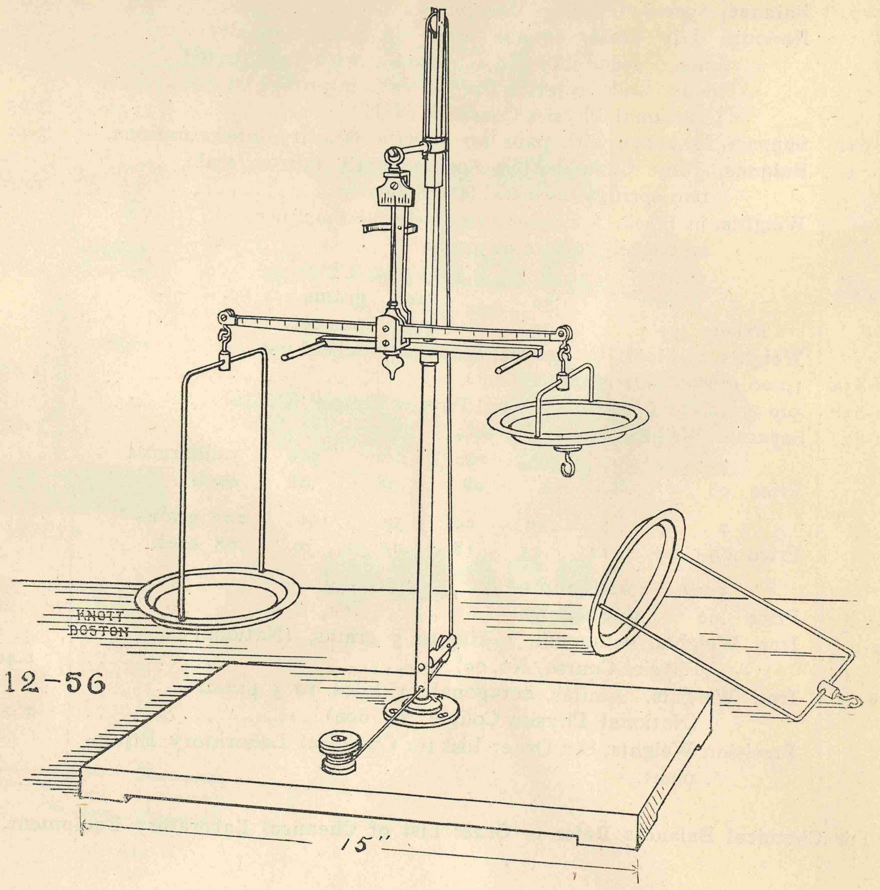


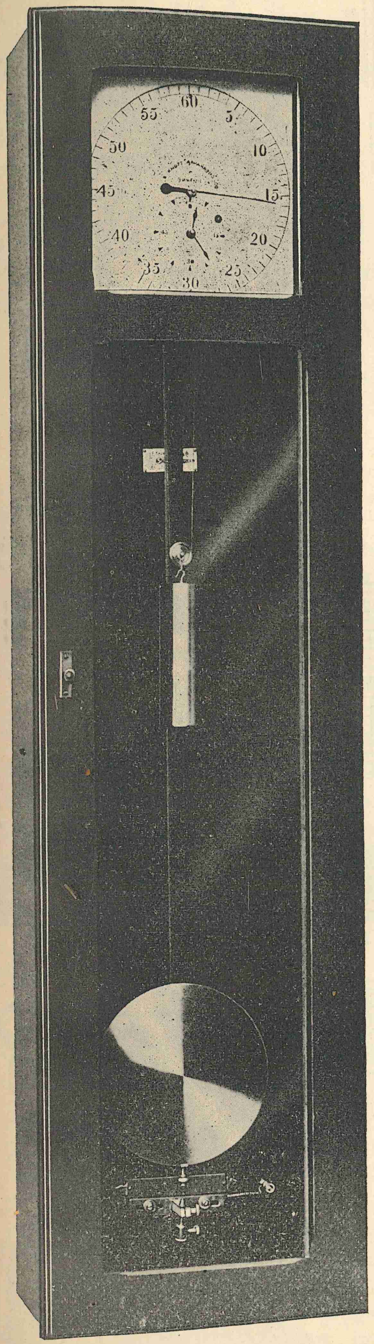
12-71

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	12-51	**Balance,** specific gravity, beam 6 inches, adjustable standard	2.50	
	12-53	**Balance,** similar, beam 10 inches	9.00	
	12-57	**Balance,** Specific Gravity, Westphals	14.00	
	12-61	**National Trip Scale,** square porcelain pans, capacity 2 kilos, sensibility 0.1 gram, with graduated beam and rider. The latest improved type, (National Physics Course XVII)	7.65	
	12-61a	**Support,** for same, with pans for Specific Gravity determinations,	3.40	
	12-71	**Balance,** Jolly Comparative Spring, with mirror, scale, two springs, adjustable suspension	5.00	
		Weights, in block, for general Secondary School use; small weights to 0.01 grams:		
	12-81	a b c 20 50 100 grams Price .70 1.00 1.60 per set.		
		Weights, in block, for general Secondary School use:		
	12-83a	1,000 grams to 1 gram	4.00	
	12-83b	500 grams to 1 gram. (National Physics Course XVIIa)	2.70	
	12-87	**Separate Weights,** for above sets: 10 20 50 100 200 500 milligrams Price .08 .08 .08 .08 .08 .08 each 1 2 5 10 20 50 100 200 grams Price .09 .10 .11 .15 .18 .20 .30 .68 each 500 1,000 grams Price .90 1.50 each		
	12-91	**Iron Weights,** octagonal, 1 kilo to 5 grams, (National Physics Course, No. 60)	1.40	
	12-93	**Iron Weights,** Similar, octagonal, 2 kilos to 5 grams, (National Physics Course, No. 60a)	2.00	
		Precision Weights, See Order List for Chemical Laboratory Equipment.		

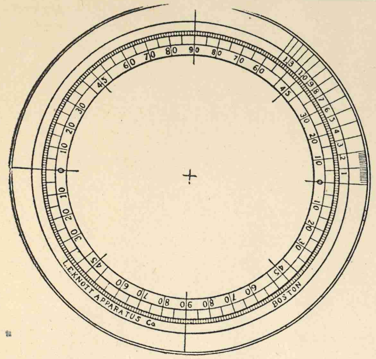
For Chemical Balances Refer to Order List of Chemical Laboratory Equipment.



12-56 **New Specific Gravity Balance.** Sensibility 5 mg., load 250 g., extra pan, jewel bearings, graduated beam for demonstrations. Made for us and imported to order. Duty free. 13.50



13 28 **Clock,** Mahogany Case, with seconds, minute and hour hands, eight day movement, seconds pendulum, electrical connection 55.00



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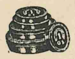

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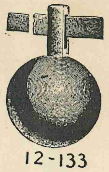

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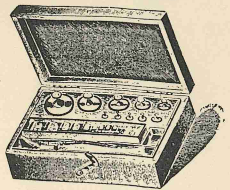

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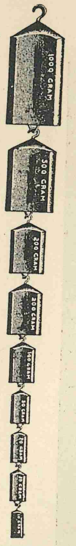

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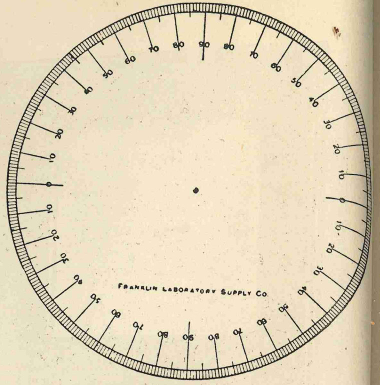

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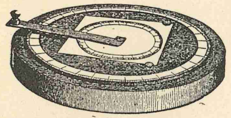

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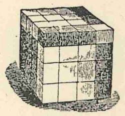

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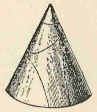

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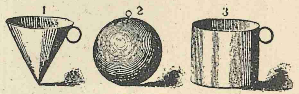

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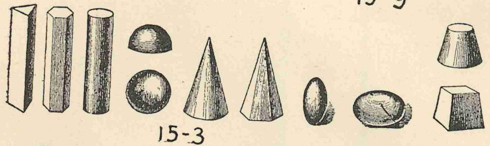

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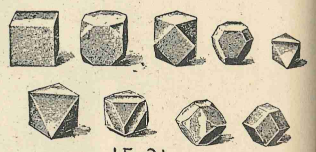

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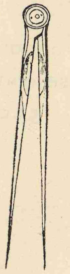

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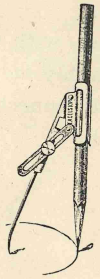

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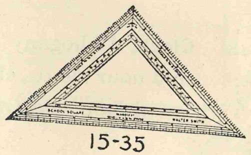

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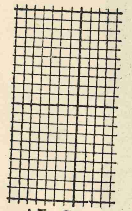

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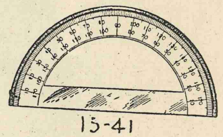

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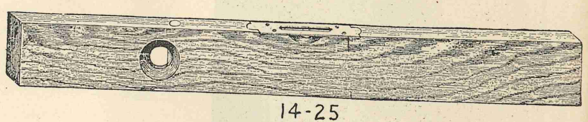

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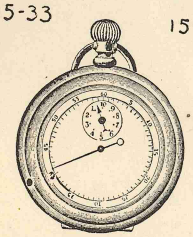

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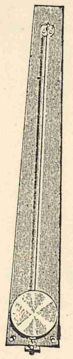

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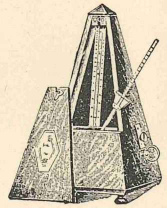

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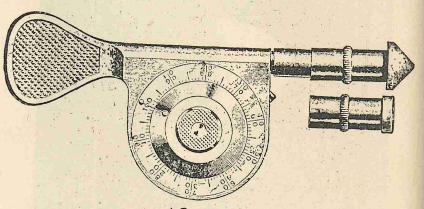

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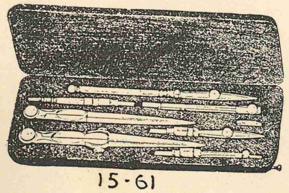

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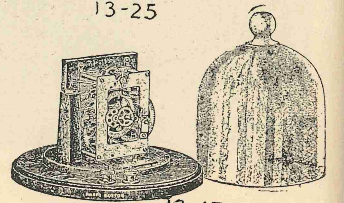


13-17

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	12-121	**German Accurate Weights,** for Secondary School work, mahogany case with cover, small weights under glass; range 50 grams to 1 milligram, with forceps......	3.75	
	12-131	**Safety Valve Weight,** 4 pounds..	.20	
	12-133	**Safety Valve Weight,** 8 pounds..	.40	
	12-141	**Iron Nest Weights,** 8 ounces to 1 ounce, (N. P. C. No. 19)........	.75	

SECTION 13, MEASUREMENT OF TIME.

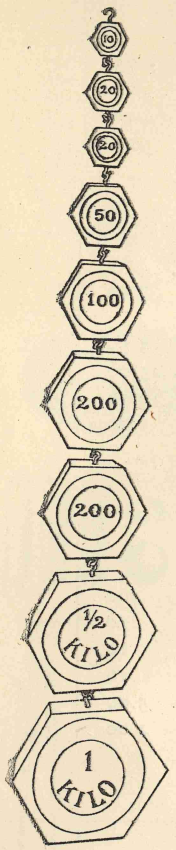
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	13-3	**Seconds Pendulum,** mounted on back board with electrical contact and adjustment..................................	7.20	
	13-15	**Metronome,** adjustable, with scale; beating fractional seconds	4.50	
	13-17	**Clock.** With reliable movements..............................	25.00	
	13-19	**Watch.** With second and minute hands, in nickel case	10.00	
	13-25	**Speed Indicator**..	1.60	

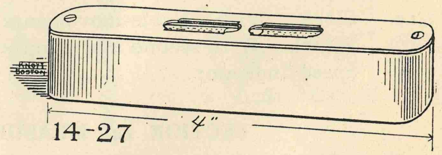
SECTION 14, MEASUREMENT OF ANGLES.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	14-3	**Tangent Scale,** Circle in degrees, with tangents of angles drawn, for use with tangent galvanometer ..per doz, .25		
	14-7	**Circle,** in degrees, on bristol board, 13 inches in diameter	.60	
	14-9	**Similar,** 4 inches..	.10	
	14-11	**Similar,** 3 inches	.10	
	14-13	**Quarter Circle,** 13 inches in diameter; (Refer to 21–107.)	.16	
	14-21	**Instrument,** for graduating circles, according to Stewart & Gee.....	5.00	
	14-25	**Carpenter's Level,** 14 inches long..............................	1.00	

SECTION 15, MATHEMATICAL INSTRUMENTS.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	15-3	**Geometric Wooden Forms,** Ritchie.......................set, 2.40		
	15-5	**Dissected Cone,** showing conic sections........................	2.00	
	15-9	**Blocks,** for illustrating cube root (Send for description) set, 2.00		
	15-15	**Cone,** Sphere and Cylinder, showing contents of the 3, being as 1, 2 and 3.......................... set, 1.50		
	15-21	**Models of Crystals,** wood (Ritchie).........set of thirteen, 2.00		
	15-31	**Universal Pencil Compass** ....doz . 1.40	.15	
	15-33	**Dividers,** brass	.40	
		Walter Smith School Square, Protractor and Triangle, (National Physics Course, No. 26):—		
	15-35	5 inches..	.08	
	15-36	6 inches..	.10	
	15-37	7 inches	.12	
	15-41	**Protractor,** stamped brass, 3¾ inches	.12	
	15-43	**Protractor,** engine divided, brass, 4 inches.......................	.25	
	15-45	**Protractor,** engine divided, 5 inches.............................	.55	
	15-51	**Cross-section Paper,** heavy bond paper, in tenth inches, 17x22 inches, accurate, lithographed........per sheet, .20		
	15-53	Same, 20x25 cm., in millimeter divisions............ ......per 100, .68		


10
20
20
50
100
200
200
½ KILO
1 KILO


KNOTT BOSTON
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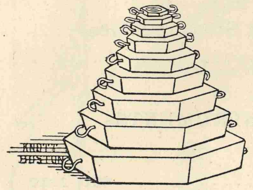
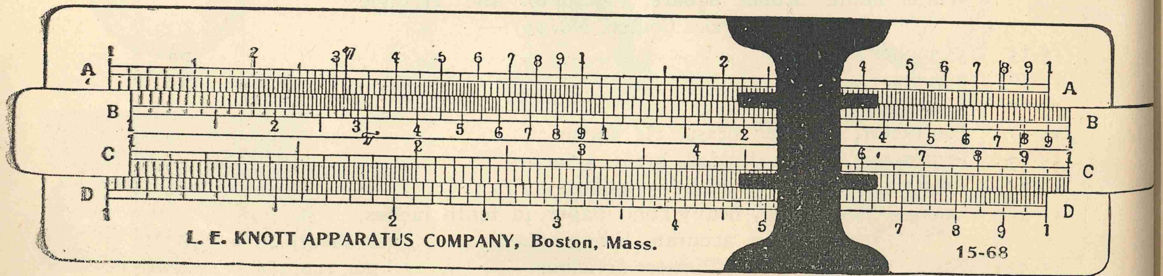
14-27

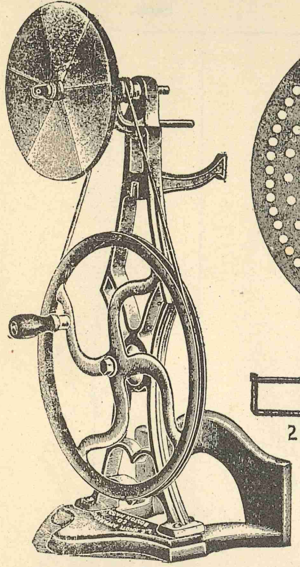

KNOTT BOSTON

12–152


A
B
C
D
L. E. KNOTT APPARATUS COMPANY, Boston, Mass.
15-68

15–68

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS.		
	12-27	**Level,** 4 in. long, metal case, very convenient for many pieces of laboratory apparatus	.50	
	12-152	**Weights,** a new an ingenious arrangement of Octagonal Weights, which may be piled one above the other, or hung one from the other	2.50	
	15-68	**Slide Rule,** Students' 5 in. Pocket Slide Rule. The Slide Rule is an instrument by means of which arithmetical computations can be performed mechanically. It is an adaptation of the logarithmic table. Set of directions furnished with each rule	.50	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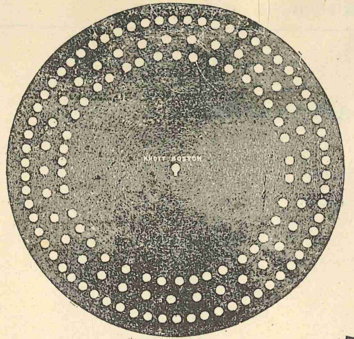

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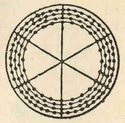
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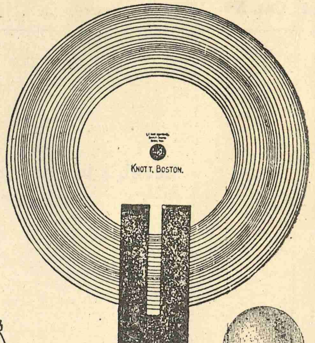
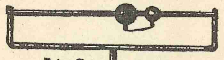

KNOTT, BOSTON.
21-31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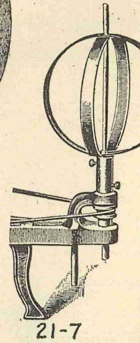
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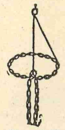
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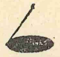
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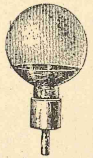
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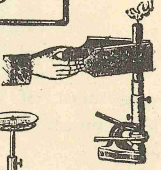
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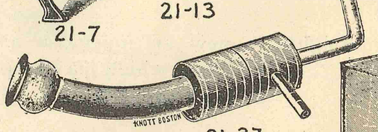

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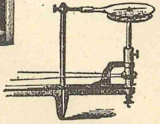
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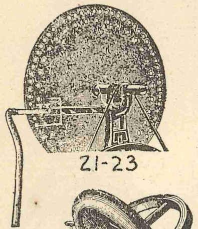
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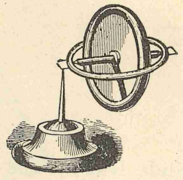
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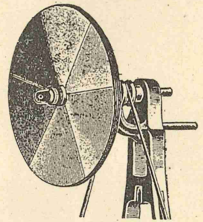
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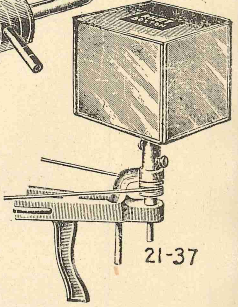
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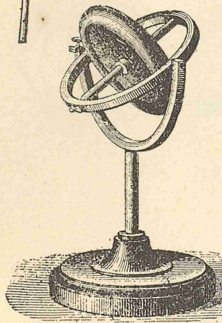
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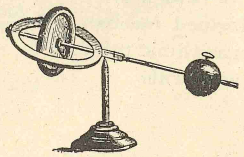
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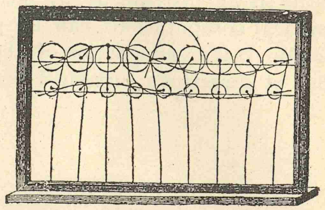
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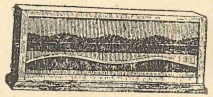
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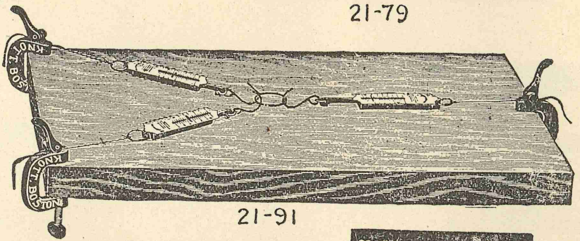

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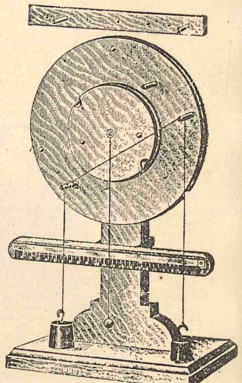
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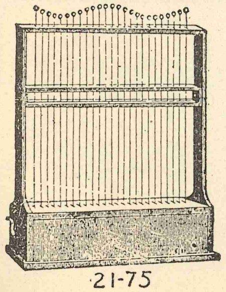
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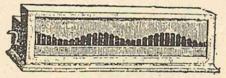
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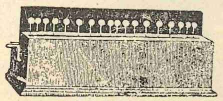
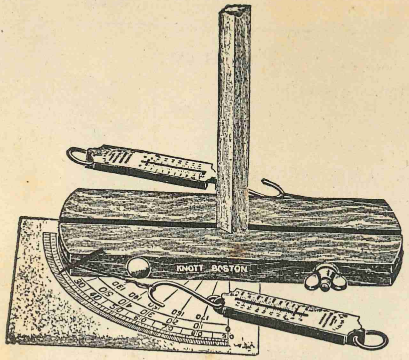
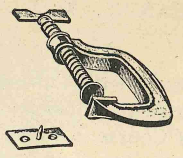

21-73

uantity anted.	Cat. No.	Description.	Price each.	Exten-sion.
	15-61	**Drawing Instruments,** for students .... set, 1.00		
	15-63	Same, fine quality, hardened steel-points, drawing instruments for draftsmen .... set, 5.00		
	15-65	**Drawing Pens**	.40	

SECTION 21, MECHANICS, MOTION AND FORCE.

		Rotator, refer to 98-29.		
	21-3	**Whirling Table or Rotator,** with universal coupling, broad base for vertical or horizontal position, (National Physics Course XXXV)	7.15	
		The Following are Accessories for above:		
	21-5	**Globe with Liquid,** illustrating centrifugal force on plastic bodies	2.10	
	21-7	**Double Elastic Brass Ring,** illustrating spheroidal shape of earth...	2.90	
	21-9	**Two Metal Balls Sliding on a Rod,** unequal masses........set, 2.90		
	21-11	**Wooden Egg**	.75	
	21-13	**Suspended Chain**	.40	
	21-15	**Brass Disc**	.60	
	21-17	**Speed Indicator,** detachable, conveniently mounted............	4.00	
	21-21	**Siren Disc,** metal, teaching the octave, musical tone and "noise," (National Physics Course LXXXIX)........	1.65	
	21-23	**Set of Pipes,** with which to operate Metal Siren Disc.....set, 2.60		
	21-25	**Siren Disc,** of bristol board............................	.65	
	21-27	**Mouth Pipe,** for same	.40	
	21-31a	**Crova Disc,** showing wave motion of sound, (National Physics Course LXXVII)	.60	
	21-31b	**Diaphragm** for preceding	1.00	
	21-33	**Tyndall's Heat by Friction Apparatus,** boiling water	2.50	
	21-35	**Newton's Color Discs,** full set, 12 inches diameter, adjustable, with scale of degrees, (National Physics Course XXVI) refer to 64-15 ....set, 2.00		
	21-37	**Manometric Flame Apparatus,** cubical mount for mirror and vibrating capsule, refer to 43-9..................	7.50	
	21-39	**Foucault's Current Apparatus,** refer to 81-62..................	5.75	
	21-41	**Persistency of Vision (cards),** refer to 61-87	1.25	
	21-43	**Savart's Wheel**	.80	
		Note.—All the Preceding in this Section are Whirling Table Accessories.		
	21-61	**Gyroscope,** 2½ inch wheel, simple mounting	2.40	
	21-63	**Gyroscope,** mounted with lever and counterpoise...............	5.50	
	21-65	**Gyroscope,** diameter 4 inches, with gimble ring and Ritchie mounting	10.00	
	21-71	**Young's Wave Motion Apparatus**	26.00	
	21-73	**Snell's Wave Motion Apparatus**..........................	32.00	
	21-75	**Powell's Wave Motion Apparatus,** as used by the Massachusetts Institute of Technology....................	55.00	
	21-77	**Snell's Illustration of Water Waves**	25.00	
	21-79	**Lyman's Wave Apparatus**	33.50	
	21-91	**Stone's Tension Clamps**.......................set of four, 1.80		
	21-95	**Composition of Force Board,** for National Physics Course No. 74.....	2.00	
	21-97	**Similar,** small, of 3-ply mahogany according to Gilley	1.00	
	21-103	**Hortvet's Moments-of-Force Apparatus,** demonstrating the relation of pulleys to levers.........................	6.25	





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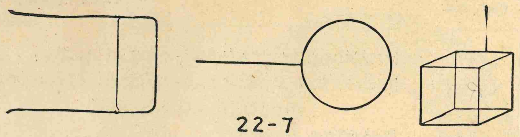

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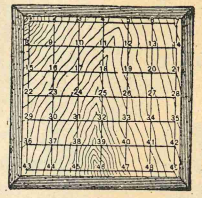

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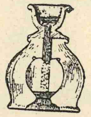

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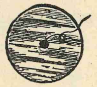

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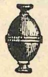

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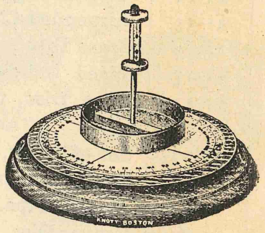

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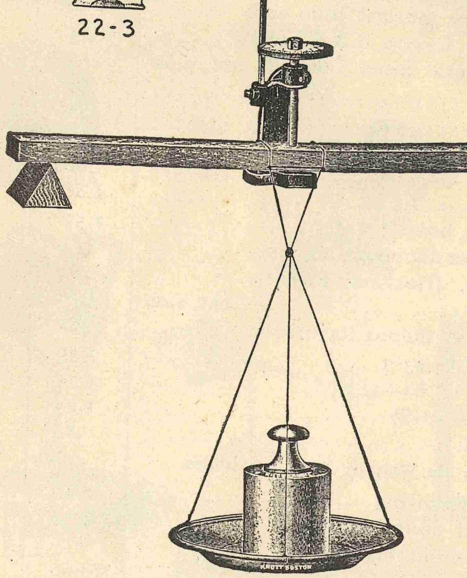

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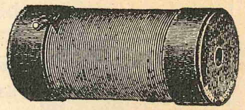

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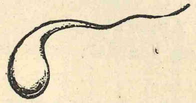

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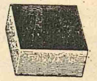

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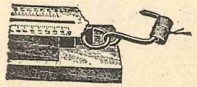
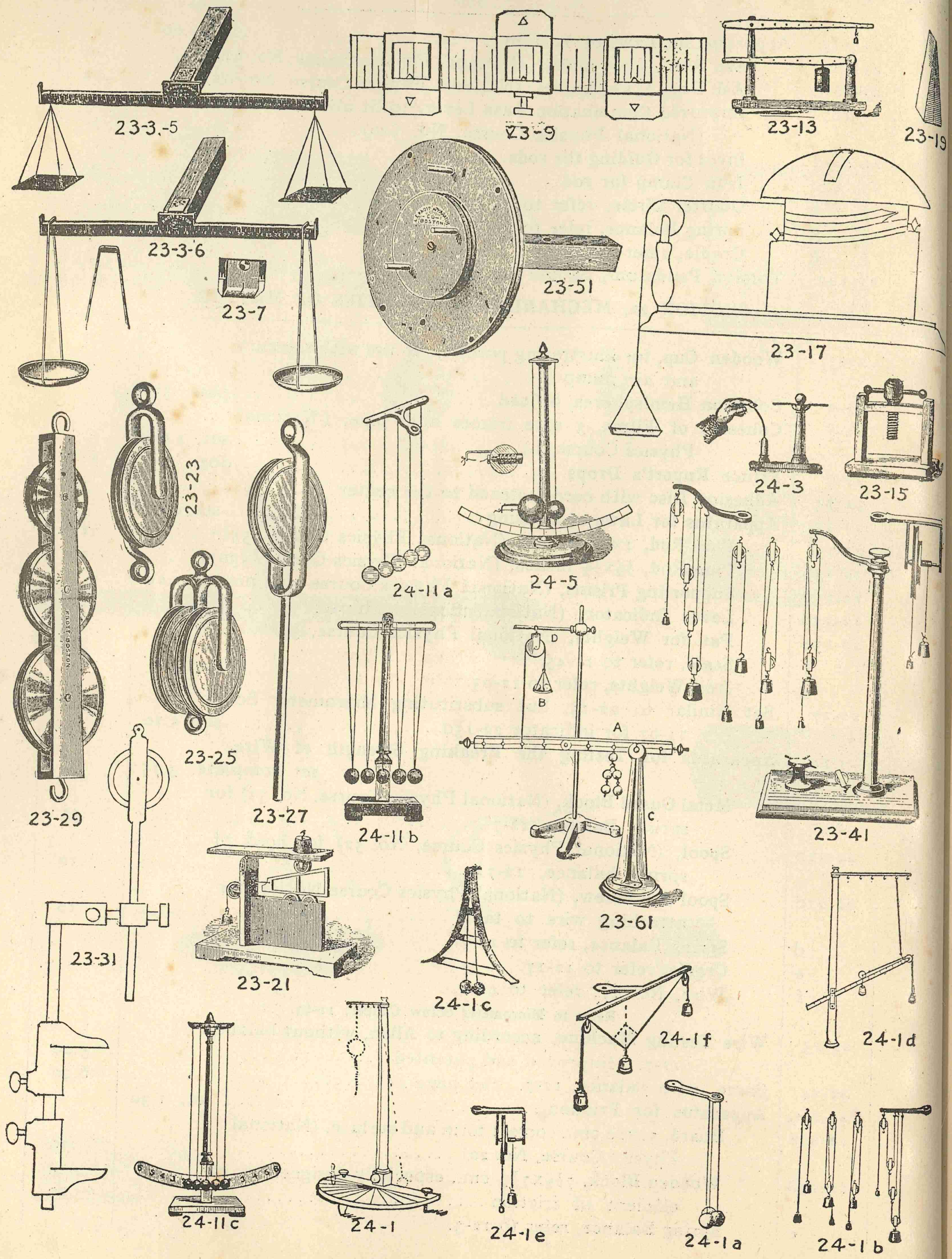


22-21b

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	21-107	**Apparatus for Laws of Torsion**........................set, 2.60		
	21-107a	**Ash Rod**, ½x½ inches, (National Physics Course, No. 61).....	.12	
	21-107b	**Ash Rod**, ¾x¾ inches, (National Physics Course, No. 62).....	.14	
	21-107c	**Improved Combination Base Lever**, to fit above rods, (National Physics Course, No. 62a)..................	.50	
	21-107d	**Pivot for Guiding the rods**..................................	.20	
	21-107e	**Iron Clamp for rod**...	.35	
	f	**Quarter Circle**, refer to 14-13.		
	g	**Spring Balance**, refer to 12-3 or 12-5.		
	h	**Cradle**, refer to 12-15.		
	21-109	**Torsion Pendulum**, Sabine design..............................	3.25	

SECTION 22, MECHANICS,—PROPERTIES OF MATTER.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	22-3	**Wooden Cup**, for illustrating porosity, to use with mercury and air pump	.85	
	22-5	**Cohesion Hemispheres**, of lead..........................pair, .50		
	22-7	**Cohesion of Films**, 3 wire frames and pipe, (National Physics Course, L)..........................set, 1.60		
	22-9	**Prince Rupert's Drops** ....doz., .25		
	22-11	**Adhesion Disc** with cord fastened to the center................	.30	
	22-15	**Apparatus for Laws of Bending**..........................set, 2.80		
	22-15a	**Pine Rod**, 1x½ inches, (National Physics Course, 55b)......	.12	
	22-15b	**Pine Rod**, ½x½ inches, (National Physics Course, 55a)......	.10	
	22-15c	**Supporting Prisms**, (National Physics Course 56), per set, .20		
	22-15d	**Lever Indicator**, (National Physics Course, 57)............	.10	
	22-15e	**Pan for Weights**, (National Physics Course, 59)............	.12	
	f	**Scale**, refer to 11-45.		
	g	**Iron Weights**, refer to 12-93.		
	22-17	Set similar to 22-15, but substituting Micrometer Screw 11-67 for indicator 22-15d ....set, 5.20		
	22-21	**Apparatus for Testing the Breaking Strength of Wire**, set complete, 3.75		
	22-21a	**Metal Guard Block**, (National Physics Course, No. 51) for spring Balance, 12-7................................	.35	
	22-21b	**Spool**, (National Physics Course, No. 52) for hook of spring balance, 12-7..................................	.10	
	22-21c	**Spool and Screw**, (National Physics Course No. 53) for attaching wire to table	.10	
	d	**Spring Balance**, refer to 12-7.		
	e	**Cradle**, refer to 12-17.		
	f	**Wire**, No. 27, refer to 91-2.		
		Refer to Micrometer Screw Caliper, 11-63.		
	22-23	**Wire Testing Machine**, according to Allen, without balance 12-7. Improved and patented	5.00	
	22-24	Same, with balance, 12-7. See page 25........................	6.90	
	22-29	**Apparatus for Friction** ....set, 1.30		
	22-29a	**Board**, 50x20 cm., correct form and surface, (National Physics Course, No. 20)	.30	
	22-29b	**Wooden Block**, 7½x7½ cm., especially designed for co-efficient of friction	.20	
	c	**Spring Balance**, refer to 12-3.		

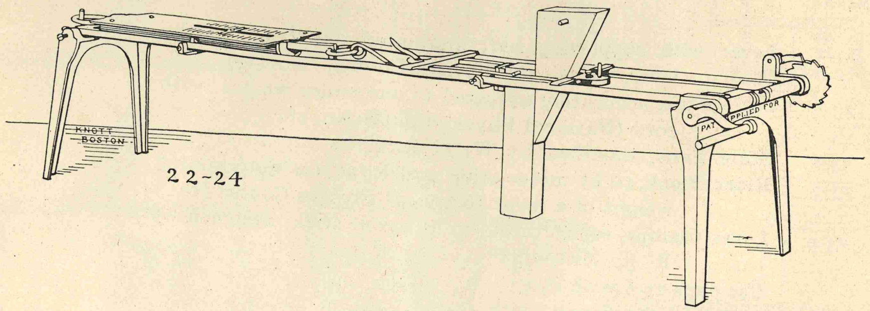


SECTION 23, MECHANICS,—MACHINES, LEVERS, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	23-3	**Lever with supporting bar,** graduated, for teaching the lever, (National Physics Course, No. 17)	.45	
	23-5	**Scale Pans,** accurately adjusted to one ounce weight, with cord (National Physics Course No. 18) pair, .30		
	23-6	**Scale Pans,** modified by W. F. Rice pair, .75		
	23-7	**Rider Block,** to fit meter stick and lever, for determining weight of a lever (National Physics Course No. 21)	.18	
	23-9	**Lever Clamps,** set of three, to fit meter stick, designed by R. J. Kittredge set, .90		
		Use pans 23-6 with 23-9.		
	23-15	**Model of the Screw,** with frame	1.60	
	23-17	**Model of the Screw,** designed by H. L. F. Morse	8.00	
	23-19	**Model of the Wedge,** in two sections, Ritchie	.80	
	23-21	**Ritchie Model of the Wedge,** with pulleys and weights	13.75	
		Note.—Brass pulleys are unsatisfactory on account of friction troubles. We therefore offer the three following:—		
	23-23	**Single Pulley,** pivotal bearings, wooden wheel, brass block, frictionless, (National Physics Course XVIII)	.45	
	23-25	**Double Pulley,** similar (National Physics Course XIX)	.65	
	23-27	**Single Pulley,** mounted on a 6-inch brass stem	.85	
		Brass Second Grade Pulleys, quoted on application.		
	23-29	**Triple Pulley,** in tandem, metal pair, 1.50		
	23-31	**Pulley,** adjustable for all directions, with clamp	1.60	
	23-41	**Set of Pulleys** including capstan, wheel and axle	7.75	
	23-51	**Wheel and Axle,** according to National Physics Course XV	.80	
	23-61	**Mechanical Powers Outfit,** according to A. P. Gage; including levers, wheel, axle and pendulums set, 7.50		

SECTION 24, MECHANICS,—INERTIA, MOMENTUM, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	24-1	**Ritchie's Universal Support,** with ball for Action and Reaction and mirror for Angle of Reflection	5.00	
		Accessories:		
	24-1a	**Three Balls,** to illustrate Composition of Forces	2.00	
	24-1b	**Set of Pulleys**	3.00	
	24-1c	**Collision Balls,** (for Reaction Experiment)	2.00	
	24-1e	**Wheel and Axle**	2.00	
	24-1f	**Composition of Forces**	2.00	
	24-3	**Inertia Apparatus,** with card and ball, Ritchie	.70	
	24-5	**Momentum Apparatus,** stand with graduated arc, two highly elastic balls, weight-ratio of 1 to 2, the large ball containing hammer and spring held by a thread, which is to be burned in order to release the spring. For demonstrating Newton's Law	7.00	
		Collision Balls:	.40	
	24-11a	**Set of Five Balls,** suspended from a frame, with clamp for supporting same on laboratory stand	1.90	
	24-11b	Same, including base and double suspension	3.50	
	24-11c	Same, including graduated arc	4.90	



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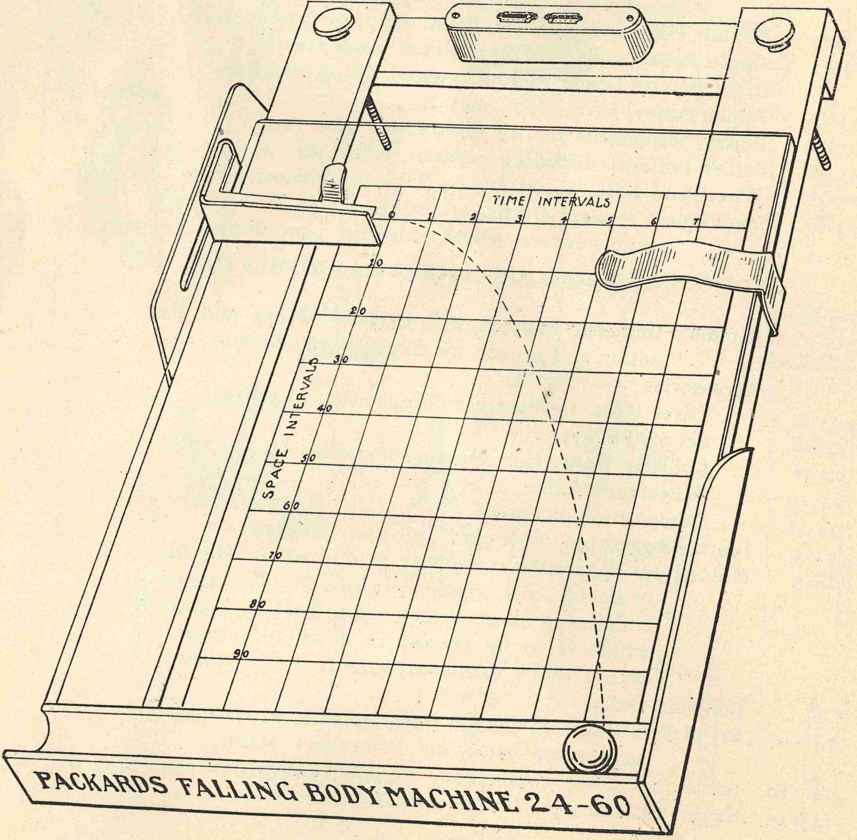
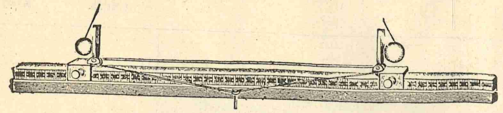


Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS.		
	24-60	**Packard's Falling Body Machine,** (patent applied for). Invented by Mr. John C. Packard, Science Master in the Brookline (Mass.) High School. A new apparatus for demonstrating the laws of falling bodies and recording results. Especially adapted to individual use in the laboratory. A rolling ball plots its path on a special sheet of plotting paper. The path is a true parabola. The relation of the fall of a body to the time interval is plotted and may be calculated. The advantage of this laboratory exercise over the lecture table exercise with the Atwood's machine is at once apparent. Price........................	3·70	
		A complete discussion of the apparatus in press.		
	22-24	**New Machine for the Breaking Strength of Materials,** (patented). Breaking wires, cotton, silk or yarn threads, glued joints, etc. Especially for the demonstration of the relation of the cross section and material to breaking strength. Including balance No. 12-7. Refer to Turner and Hersey Note-Book, Experiment No. M190. Price.........	6.90	
		NOTE: This apparatus is substituted in place of the former wooden machine.		



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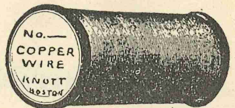

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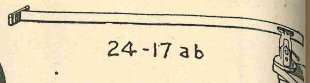

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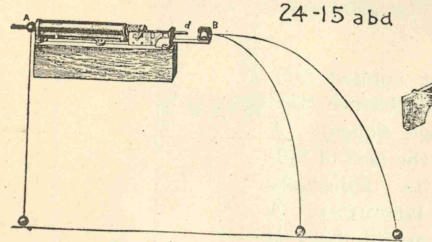

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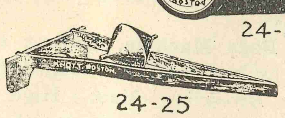

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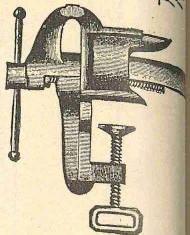

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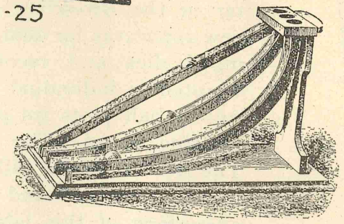

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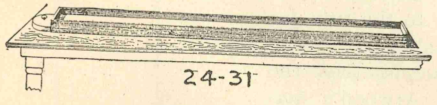

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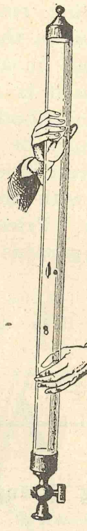

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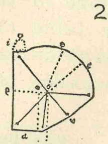

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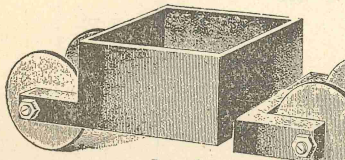

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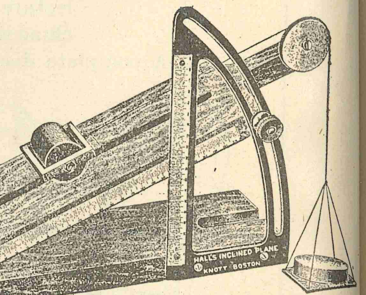

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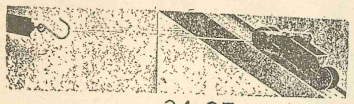

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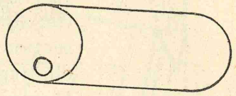

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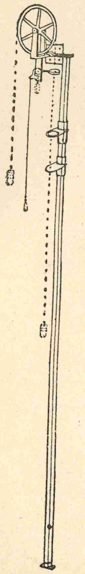

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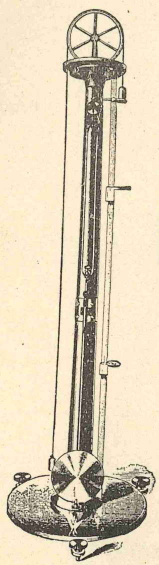

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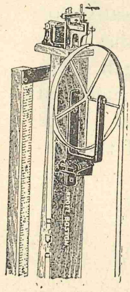

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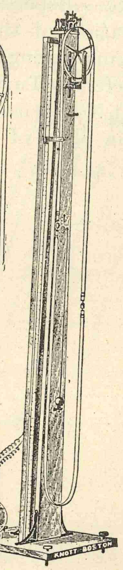

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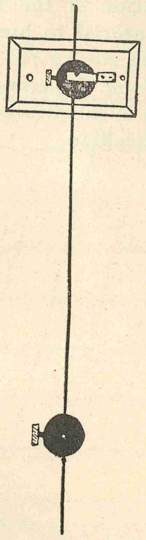

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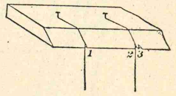

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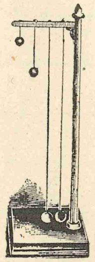

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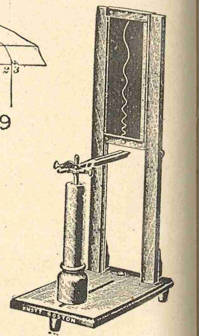

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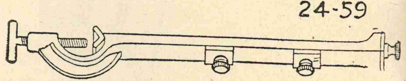
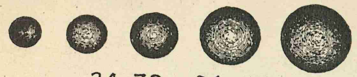


24-71

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	24-15	**Action and Reaction Apparatus,** according to the National Physics Course	6.20	
	24-15a	**Base with Metric Scale,** (National Physics Course, No. 79d)	1.00	
	24-15b	**Drops for Releasing Balls,** (National Physics Course, No. 79d) set, .60		
	24-15c	**Pendulum Suspension Block,** refer to 24-69	.45	
	24-15d	**Pair of Ivory Balls,** refer to 24-95 and 24-96 pair, 3.80		
	24-15e	**Spool of Copper Wire,** (National Physics Course No. 79c), refer to 91-4	.35	
	24-17a	**Second Law of Motion, Spring Board,** with two marbles for use with vise, National Physics Course LV	.60	
	24-17b	**Vise**	1.00	
	24-19	**Second Law of Motion Apparatus,** according to Gage	3.50	
	24-25	**Double Cone and Track,** on which the cone apparently rolls up an incline	1.25	
	24-27	**Brachystochrone,** illustrating the speed of three different inclined ways,—straight, circular and cycloidal	18.00	
	24-29	**Hall's Inclined Plane,** as used in the National Physics Course XX, not including scale pan and car of relative weights	5.90	
		Car, refer to 24-33. **Pan,** refer to 23-5.		
	24-31	**Inclined Plane** with side rails, for the National Physics Course, No. 77, 120x15 cm., with screw adjustment for inertia experiments	1.50	
	24-33	**Car for Inclined Plane,** pivotal bearings, National Physics Course, No. 76	1.25	
	24-35	**Special Rubber** for Inertia Experiments, for use with above car, (National Physics Course, No. 76a)	.18	
	24-37	**Harness,** for above car for applying force parallel to base	.30	
	24-51	**Atwood's Machine,** Ritchie's Wall Form	15.00	
	24-53	**Atwood's Machine,** Ritchie's Lecture Form	35.00	
	24-55	**Improved Atwood's Machine,** self-recording (Send for circular.)	50.00	
	24-59	**Ames & Bliss Apparatus** for falling bodies, record made by tuning fork; see Hortvet's Manual of Practical Physics	4.75	
	24-60	See page 25.		
	24-61	**Guinea and Feather Tube,** 4 feet long	7.50	
		Note.—The Guinea and Feather tube should not be used for a fountain in vacuum because of the difficulty of properly drying it.		
	24-63	**Center of Gravity Board,** with suspension handle and bob, Ritchie design, illustrating stable, unstable and neutral equilibrium, (National Physics Course XVI,) set, 1.25		
	24-64	**Cylinder,** loaded excentrically (National Physics Course LIV)	.30	
	24-65	**Reversible Pendulum with adjustable weights,** Draper (Kater's)	2.50	
	24-67	**Pendulum Support,** Ritchie	5.75	
	24-69	**Pendulum Suspension Block,** National Physics Course XXI, for attaching to ceiling or cross-bar	.45	
	24-71	**Pendulum Support,** for use with laboratory stands	1.60	



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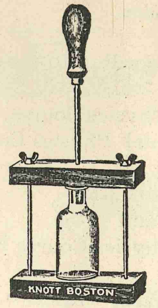

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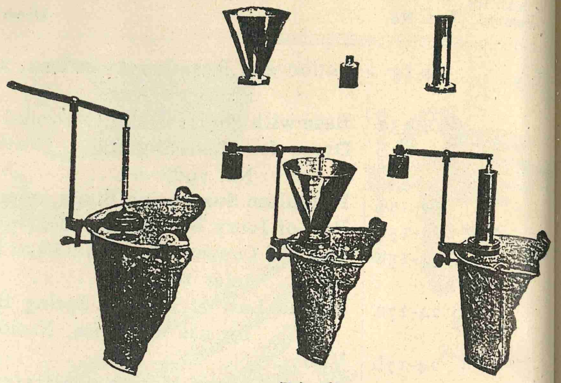

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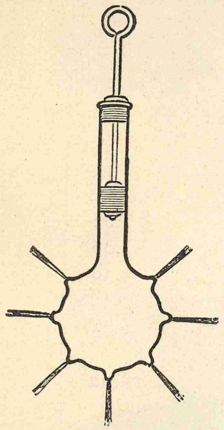

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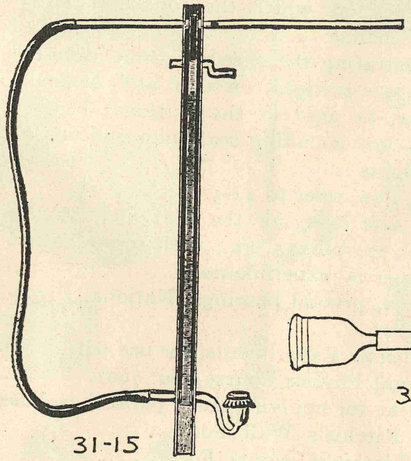

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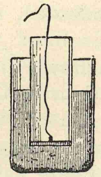

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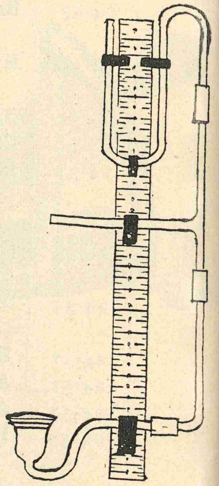

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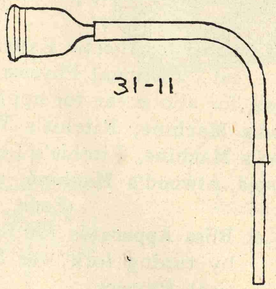

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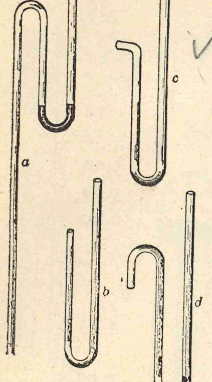

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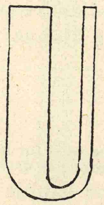

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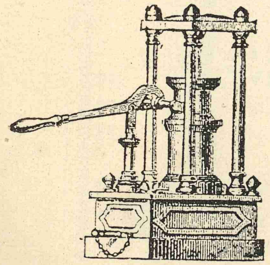

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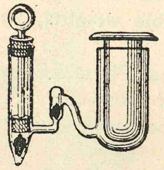

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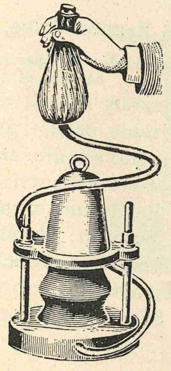

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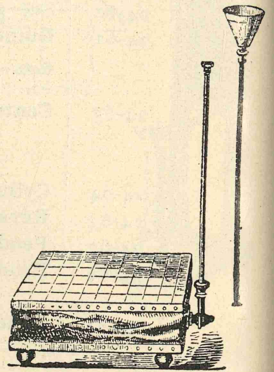


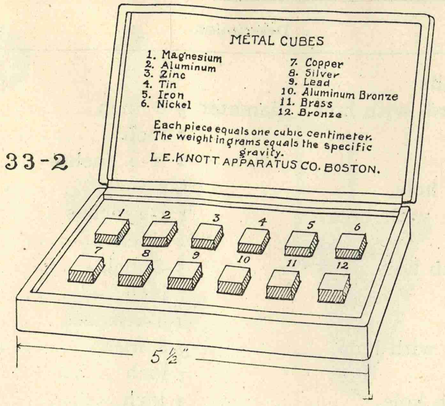
31-27

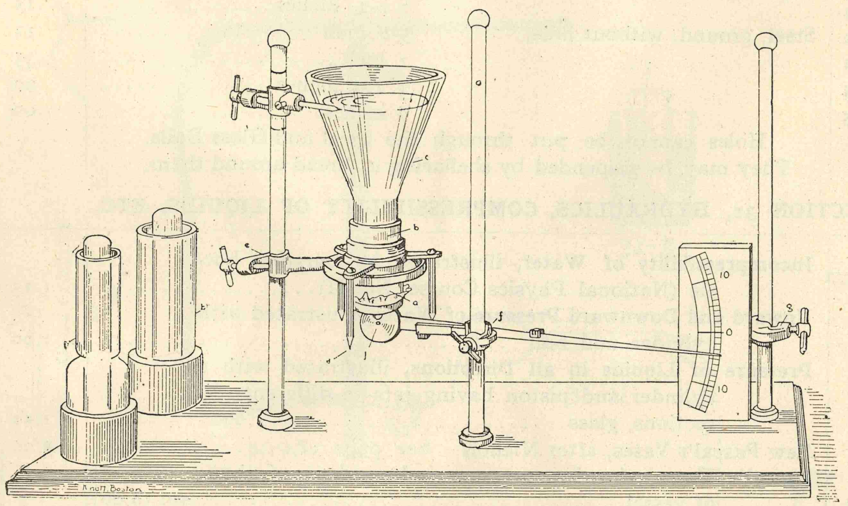
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		Pendulum Balls:		
	24-72	**Wooden,** turned, with hole, diameter 5-8 inch	.08	
	24-73	1 inch	.10	
	24-74	1 1-2 inches	.15	
	24-82	**Glass,** without hole, 5-8 inch ....doz. .18		
	24-94	**Ivory,** turned, with hole. 1 1-2 inches	1.70	
	24-95	2 inches	2.10	
	24-102	**Lead,** cast, with hole, 5-8 inch	.08	
	24-103	1 inch	.25	
	24-104	1 1-2 inches	.60	
	24-112	**Brass,** ground, with hole, 5-8 inch	.35	
	24-113	1 inch	.50	
	24-123	**Iron,** cast, with hole, 1 inch	.09	
	24-124	1 1-2 inches	.15	
	24-132	**Steel,** ground, without hole, 5-8 inch	.11	
	24-133	1 inch	.35	
	24-134	1 1-2 inches	.90	
	24-135	2 inches	1.00	
		Holes cannot be put through the Steel and Glass Balls. They may be suspended by shellacing a thread around them.		

SECTION 31, HYDRAULICS, COMPRESSIBILITY OF LIQUIDS, ETC.

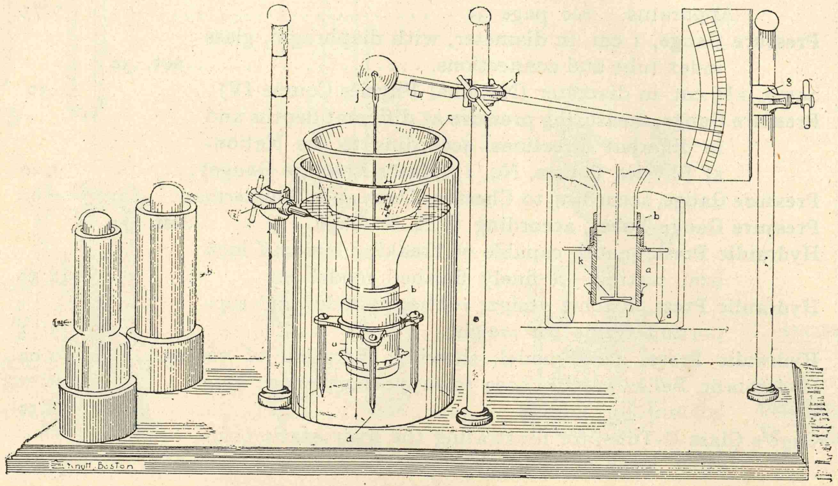
	31-3	**Incompressibility of Water,** illustrated by bursting bottle (National Physics Course, No. II)	1.25	
	31-5	**Upward and Downward Pressure of Water,** illustrated with cylinder and ball	1.00	
	31-7	**Pressure of Liquids in all Directions,** illustrated with a cylinder and piston having jets in different directions, glass	1.50	
	31-8	**New Pascal's Vases,** after Nichols. See page 31	15.00	
	31-9	**Pascal's Vases,** showing pressure independent of shape of vessel ....set, 8.00		
	31-10	**Pascal's Vases,** Equilibrium and Capillary Tubes Glass Apparatus. See page 31	6.75	
	31-11	**Pressure Gauge,** 1 cm. in diameter, with diaphragm, glass index tube and connections, ...set, .30		
	31-13	Same, 2½ cm. in diameter (National Physics Course IV)	.30	
	31-15	**Pressure Gauge,** measuring pressure at different depths and in different directions, according to the National Physics Course, No. 1, (Hall's Pressure Gauge)	1.20	
	31-17	**Pressure Gauge,** according to Cheston, Dean and Timmerman	2.00	
	31-19	**Pressure Gauge Tubes,** according to A. P. Gage..........set, .75		
	31-21	**Hydraulic Press,** metal, capable of breaking one-half inch iron casting,—a finely finished model	28.50	
	31-23	**Hydraulic Press,** Ritchie design, rubber cylinder and supporting frame for weight	7.75	
	31-25	**Hydraulic Press,** glass model, showing operation of valves	2.00	
	31-27	**Hydrostatic Bellows,** with base to support a person; long column for liquids	18.50	
	31-29	**Gage's Glass U-Tube,** for illustrating the hydrostatic principle, arms of unequal diameter	.20	

33-2


METAL CUBES
1. Magnesium
2. Aluminum
3. Zinc
4. Tin
5. Iron
6. Nickel
7. Copper
8. Silver
9. Lead
10. Aluminum Bronze
11. Brass
12. Bronze
Each piece equals one cubic centimeter. The weight in grams equals the specific gravity.
L.E. KNOTT APPARATUS CO. BOSTON.
1
2
3
4
5
6
7
8
9
10
11
12
5½"

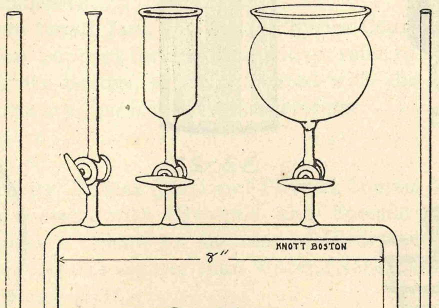

Knott Boston

31-8 Illustrating Downward Pressure.

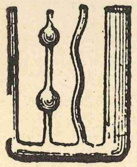

Knott Boston

31-8 New Model Nichols' Pascal Vases, Illustrating Upward Pressure.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	31-8	**New Pascal's Vases after Nichols.** This outfit mounted on an oiled base has many advantages and demonstrates readily the equal pressure independent of the shape, and according to the depths of the liquid. Additional to this the illustration shows the demonstration of the upward pressure of a liquid. Price........................	15.00	
	31-10	**Pascal's Vases, Equilibrium and Capillary Tubes.** This glass apparatus demonstrates readily the Pascal's law. Mercury is used as the indicator in the manometer tube. When filled with water it illustrates very readily equilibrium of a liquid. When the two manometer gauges are used capillarity may be demonstrated. Price...................	6.75	
	33-2	**Box of Metal Cubes for illustrating density, specific gravity, character of minerals.** These twelve cubes of different minerals are each one-cubic-centimeter. The weight, therefore, in grams is the specific gravity of the material. Comparative weight of the various cubes shows their relative density. Duty Free........................	12.00	


KNOTT BOSTON
8"

31-10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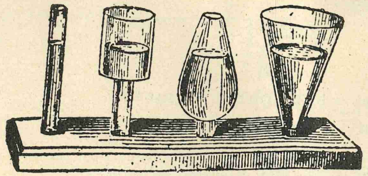
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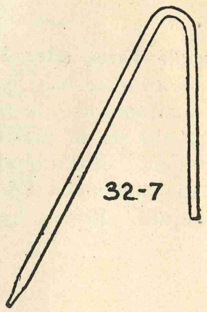
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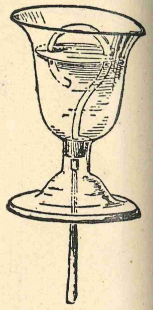
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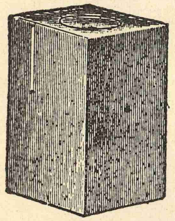
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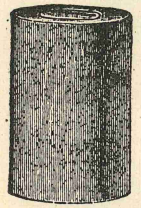
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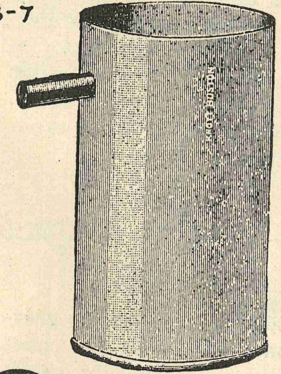
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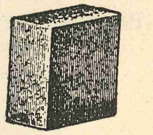
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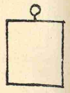
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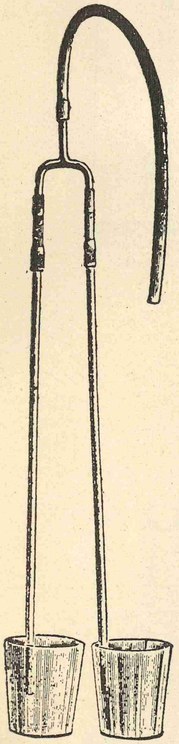
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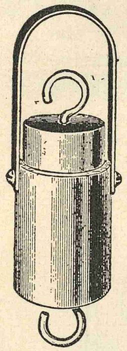
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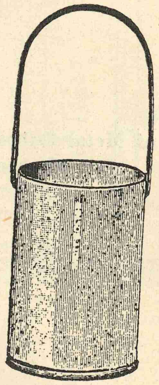
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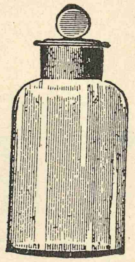
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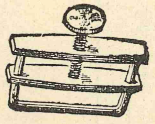
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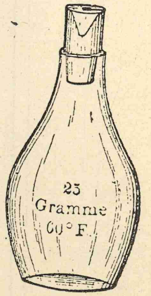
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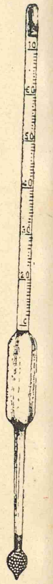
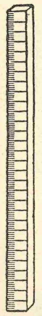

33-23

SECTION 32, HYDRAULICS,—WEIGHT OF LIQUIDS.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	32-3	**Equilibrium Tubes,** set of four, in one piece of glass	.85	
	32-5	**Equilibrium Tubes,** showing that a liquid seeks its own level in any shape of vessel, including tubes and base	7.00	
		Refer to 31-10.		
	32-7	**Siphon,** glass, 12-inch arm	.25	
	32-9	**Tantalus Cup,** illustrating the intermittent spring	.75	

SECTION 33, HYDRAULICS,—GRAVITY, DISPLACEMENT, BUOYANCY, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	33-2	See page 30.		
	33-3	**Archimedes' Cylinder and Bucket,** with handle	2.00	
		Apparatus for Specific Gravity, Density, etc., as used in the National Physics Course for Gravity, Displacement, etc., as follows:		
	33-4	**Overflow Can,** nickel plated, spring brass and correct proportions, (National Physics Course, No. 5)	.60	
	33-5	**Catch Bucket,** nickel plated, with handle, adapted for above, (National Physics Course, No. 6)	.40	
	33-7	**Loaded Waterproof Wooden Cylinder,** 8x4½ cm., (National Physics Course, No. 4) adapted to above	.30	
	33-9	**Loaded Waterproof Rectangular Block,** (National Physics Course, No. 8)	.30	
	33-11	**Waterproof Cherry Block,** not loaded, (National Physics Course, No. 9)	.18	
	33-13	**Lead Weight** with ring, (National Physics Course, No. 12)	.15	
	33-14	**Cylinder of Sulfur,** (National Physics Course, No. 11)	.07	
	33-15	**Waterproof Wooden Float,** 20x1 cm., (National Physics Course, No. 13)	15	
	33-17	**Support for above,** to be used with battery jar (National Physics Course, No. 14)	.16	
	33-19	**Y-Tube Outfit,** (National Physics Course, No. 65) for Hare's Method, as noted below	.95	
	33-19a	**Lead Y-Tube** (National Physics Course, No. 73)	.27	
	33-19b	**Rubber Tubing,** 3-8 inch, one foot	.16	
	33-19c	**Two Standard Lengths of Glass Tubing,** 3-8 inch . . pair, .20		
	33-19d	**Pinchcock**	.22	
	33-19e	**Two Small Jars,** (National Physics Course, No. 64)	.06	
		New Support for use with above, refer to 41-43		
	33-21a	**Specific Gravity Bottles,** 25 cc., adjusted with the utmost accurary, perforated glass stopper	.85	
	33-21b	Similar, 50 cc	1.20	
	33-21c	Similar, 100 cc	2.25	
	33-22	**Specific Gravity Bottles** (National Physics Course, No. 16)	.10	
		Glass Hydrometers, with (Beaume and Specific Gravity Scales:) (Send for Circular of Hydrometers).		
	33-23	For Liquids Lighter than Water, (National Physics Course XI)	.65	
	33-25	For Liquids Heavier than Water, (National Physics Course XII)	65	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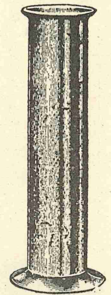
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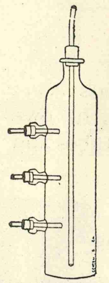
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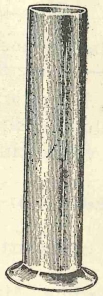
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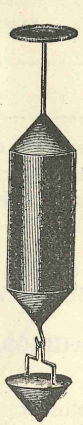
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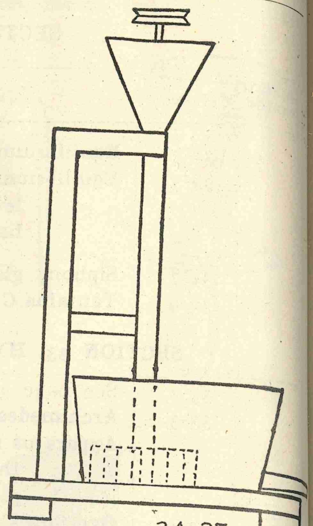
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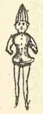
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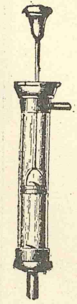
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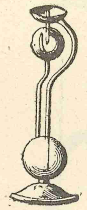
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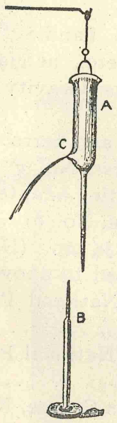

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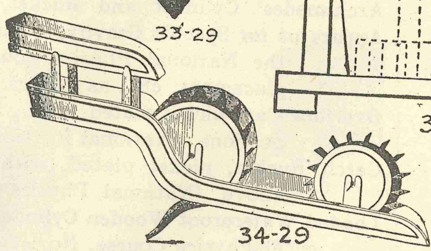
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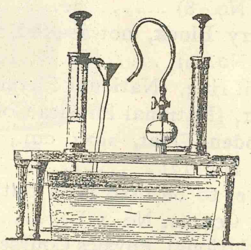
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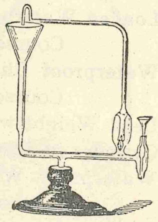
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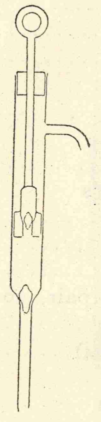
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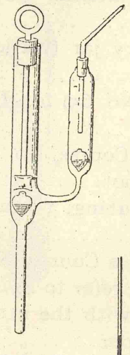
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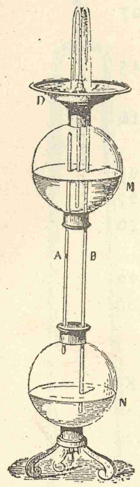

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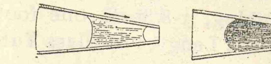
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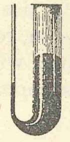
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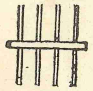
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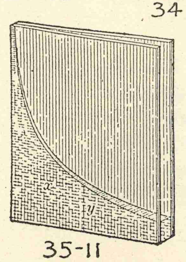
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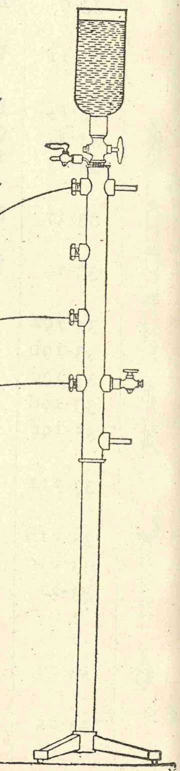

34-3

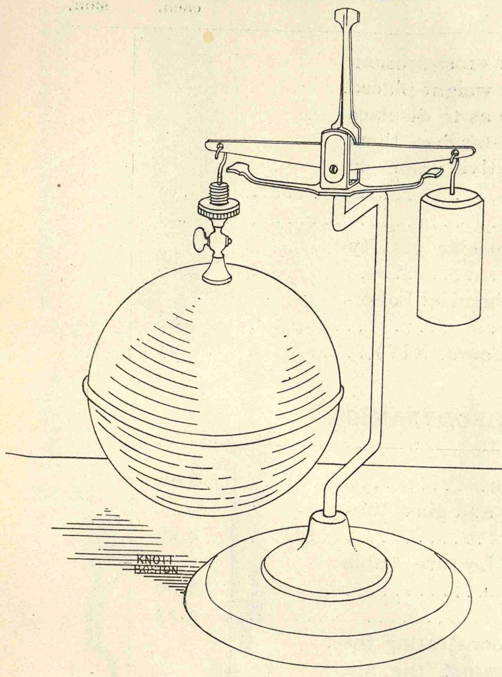
Quantity wanted.	No. Cat.	Description.	Price each.	Extension.
	33-27	**Wooden Hydrometer,** one square centimeter cross-section, graduated in millimeters, one gram weight placed on top will sink the hydrometer so as to displace one cubic centimeter of water;—teaches them principle of hydrometers and relative values in the metric system	.30	
	33-28	**Hydrometer Jar,** for above hydrometers	.45	
	33-29	**Nicholson's Hydrometer,** for determining specific gravity of solids	2.00	
	33-31	**Hydrometer Jar,** for above (See Catalog of Chemical Laboratory Supplies)	.80	
	33-33	**Cartesian Diver** (Imp)., (National Physics Course XIV)	.25	

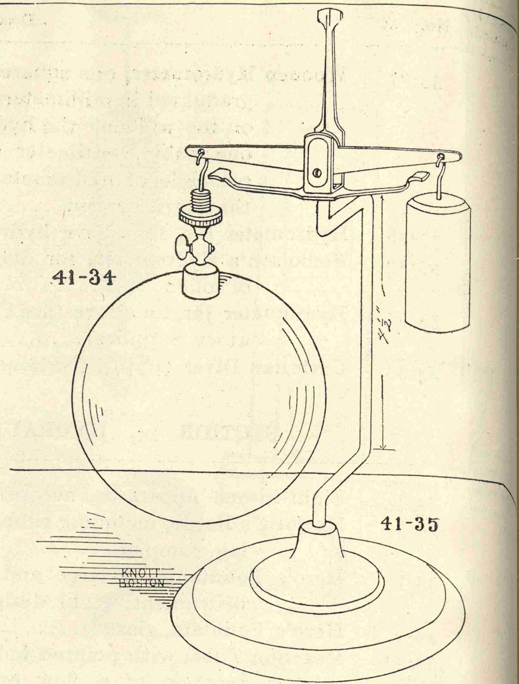
SECTION 34, HYDRAULICS,—HYDRODYNAMICS.

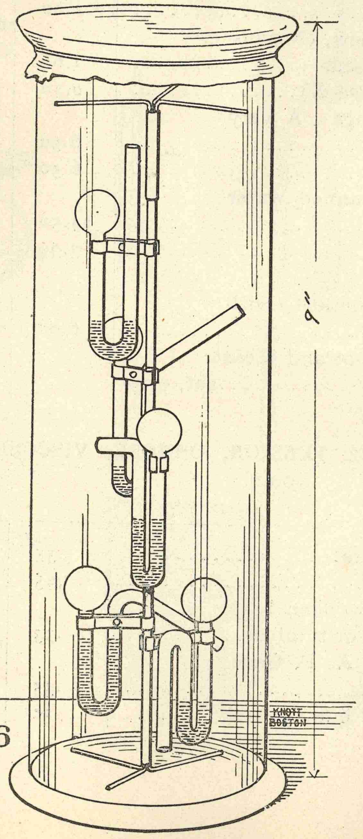
Quantity wanted.	No. Cat.	Description.	Price each.	Extension.
	34-3	**Eight-in-one Apparatus,** according to Gage	8.00	
	34-5	**Mariotte's Bottle,** including rubber stoppers and glass tubing, complete	4.50	
	34-7	**Hero's Fountain.** A large and elaborate Lecture Table instrument, Kohl design	18.00	
	34-9	**Hero's Fountain,** glass	3.25	
	34-11	**Reaction Tube,** with pointed indicator, demonstrating the reaction of a flow of liquid against the air, (National Physics Course LVI)	1.00	
	34-13	**Lift Pump,** glass model, large valves, in full view, (National Physics Course IX)	1.60	
	34-15	**Force Pump,** similar, (National Physics Course X)	2.10	
	34-17	**Lift Pump,** glass model, with brass mountings. A very substantial piece of apparatus	6.50	
	34-19	**Force Pump,** similar	6.50	
	34-21	**Lift and Force Pump,** mounted, with Japanned water cistern	14.50	
	34-23	**Hydraulic Ram,** glass, with wooden base	3.90	
		Hydraulic Press, glass model, refer to 31-25.		
	34-27	**Model of Turbine Water Wheel,** wooden support, with cistern	6.00	
	34-29	**Water Wheels;** models of over-shot, under-shot and breast wheels. set, 9.00		

SECTION 35, HYDRAULICS,—CAPILLARITY, SURFACE TENSION, OSMOSE, VISCOSITY, FRICTION.

Quantity wanted.	No. Cat.	Description.	Price each.	Extension.
	35-3	**Capillary Tube,** tapering, as designed by Chute	.35	
	35-5	**Capillary Tubes,** set of four in a bundle	.25	
	35-7	**Capillary Tubes,** set of four, sealed into a wooden bar, convenient to place on a battery jar or tumbler	.35	
	35-9	**U-Tube,** one arm capillary, as designed by A. P. Gage (Principles of Physics, Page 137)	.35	
	35-11	**Capillary Plates,** demonstrating the capillary line	.30	







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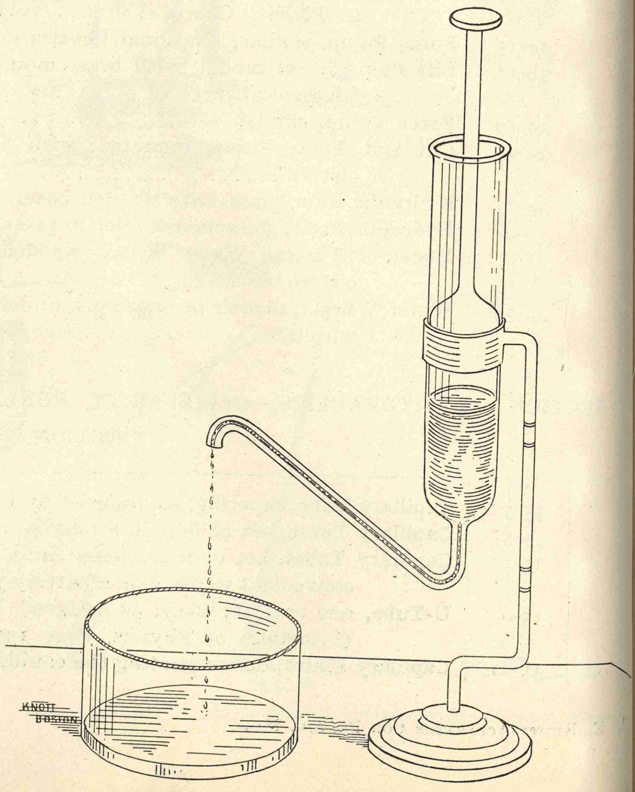

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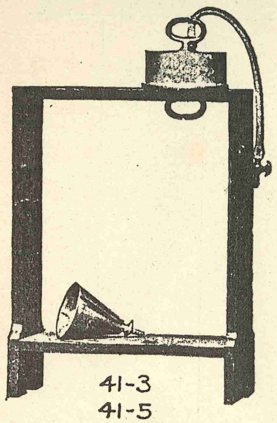
Quantity Wanted	Cat. No.	Description	Price each.	Exten-sion.
	41-33	**Baroscope Globe** for demonstrating weight of air, provided with Counterpoise. See page 39	2.90	
	41-34	**Glass Baroscope Globe,** relatively light in weight, adapting itself readily to a demonstration of the weight of air. With Counterpoise. Price	3.25	
	41-35	**Balance,** for use of above Globe. Especially designed so that balance and globe may be placed under the bell jar on plate of air pump. The most satisfactory way for class demonstration	2.50	
	41-6	**Apparatus for the Demonstration of the Pressure of Gases in all Directions.** The glass cylinder with rubber diaphragm contains a set of manometer tubes opening in various directions. The pressure on the diaphragm will indicate on all the manometers. Duty Free	6.40	
	41-160	**Mercury Storage Funnel.** One appreciates the difficulty of handling and storing a small amount of clean mercury in the laboratory. This article appeals to one as a clean storage for mercury and a most handy syringe for filling barometer tubes, commutators, Ampere's law apparatus, etc. Duty Free	3.00	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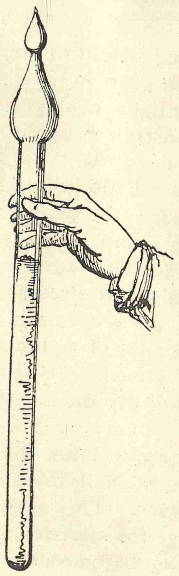
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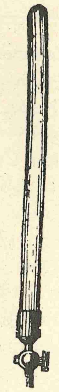
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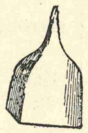
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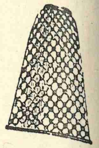
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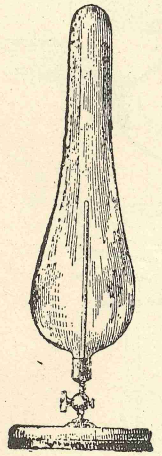
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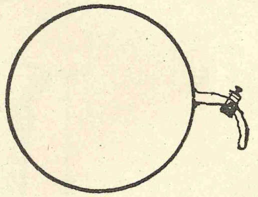
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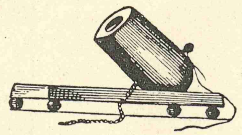
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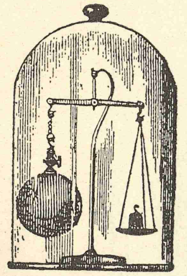
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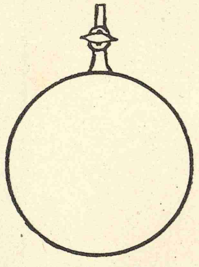
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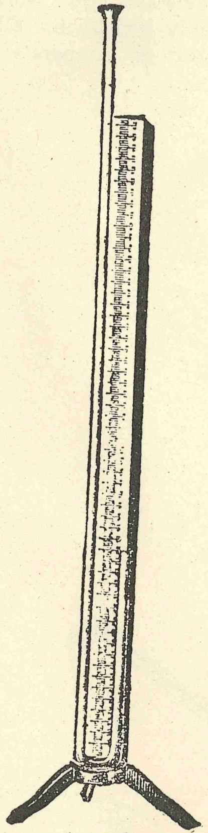
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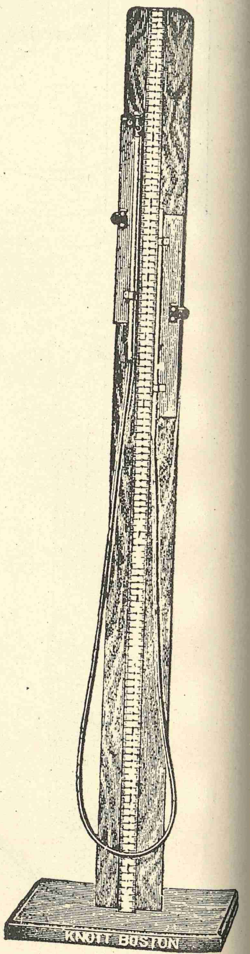
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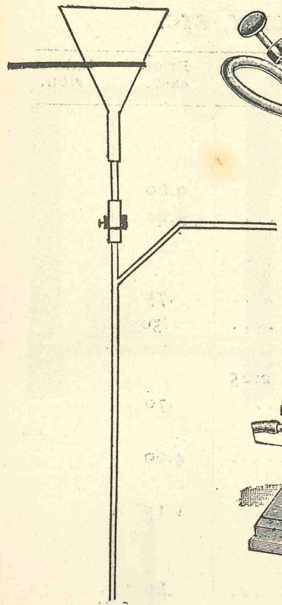
SECTION 41, PNEUMATICS,—COMPRESSION, EXPANSION, ELASTICITY, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	41-3	**Gage's Seven-in-one Apparatus,** including: **Rubber Tubing, Stopcock and Funnel** (National Physics Course LII)	9.60	
	41-5	**Wooden Stands,** for same, according to Gage	3.00	
	41-6	See page 37.		
		Water Hammers:		
	41-7	**Sealed and Exhausted**	.75	
	41-9	**Open,** with stopcock for attaching to air pump	2.50	
	41-11	**Bursting Squares** of thin glass, to teach expansion of a gas	doz, 2.25	
	41-15	**Wire Guard** for above	.70	
	41-17	**Fountain in a Vacuum;** a special glass receiver with connections for air pump	4.00	
	41-19	**Rubber Bag,** with tube and pinchcock, for use with bell glass and air pump, (National Physics Course VII)	1.15	
	41-31	**Baroscope Bottle,** for National Physics Course, No. 69, including: rubber stopper, glass tube, rubber tube and pinchcock	.80	
	41-33	**Baroscope Globe,** of brass, for demonstrating that air has weight, including: globe, stopcock and counterpoise. See page 37	2.90	
	41-34	See page 37.		
	41-35	Balance for same, adapted for use with bell jar. See page 37	2.50	
	41-37	**Glass Baroscope Globe,** with stopcock, without counterpoise	1.80	
	41-39	**Boyle's or Mariotte's Law Tube,** thick walls, funnel top, large bore, uniform diameter, (National Physics Course VI)	1.25	
	41-41	**Boyle's Law Tube,** thinner glass, not selected	.80	
	41-43	**Support for Boyle's Law Tube,** upright with metric scale in millimeters, supported by tripod having leveling screws, (National Physics Course, No. 66)	1.25	
	41-45	**Mercury Well,** iron, tall, mounted, (National Physics Course LXXIV)	6.50	
	41-47	**Boyle's Law Apparatus,** adjustable form, with oak stand and metric scale, illustrating Boyle's Law for pressures greater and less than one atmosphere, also the barometer principle, vapor tension, etc	4.25	
	41-49	**Hydrogen Pistol,** for demonstrating expansion from a gas	2.00	
	41-53	**Boltwood Mercury Air Pump,** refer to 89-20 and 89-24.		
		Aspirator or Filter Pumps. (See Catalog of Chemical Laboratory Supplies.)		

Double Distilled Mercury especially for experiments in Pneumatics.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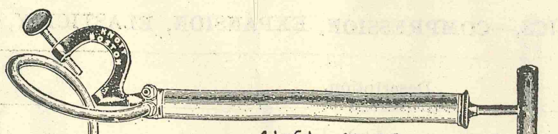
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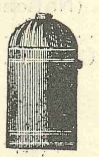
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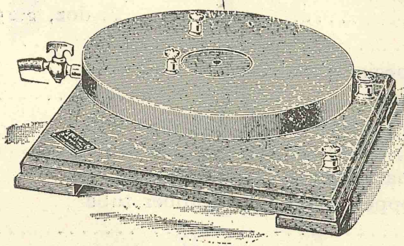
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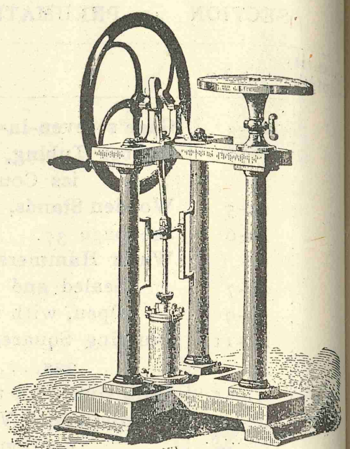
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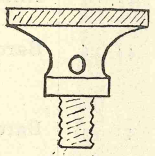
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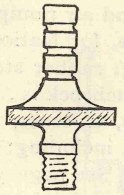
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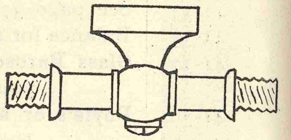
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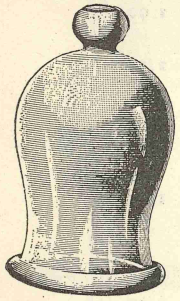
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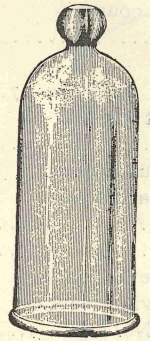
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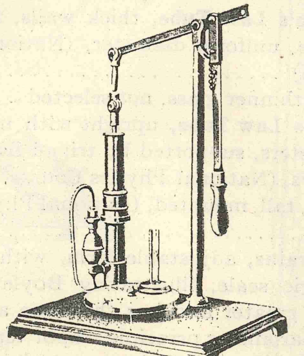
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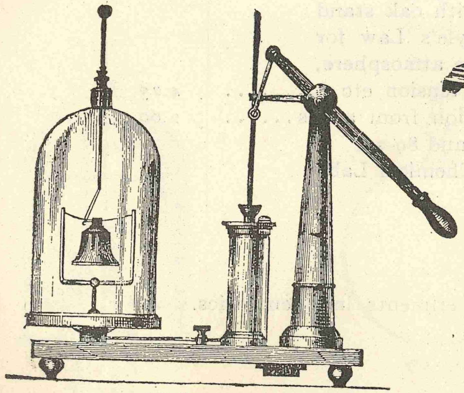
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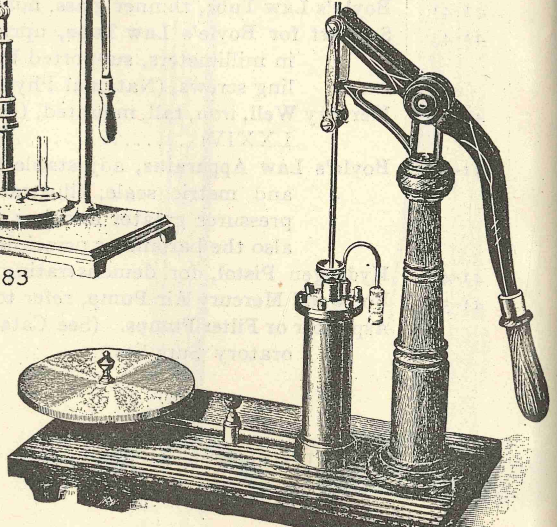
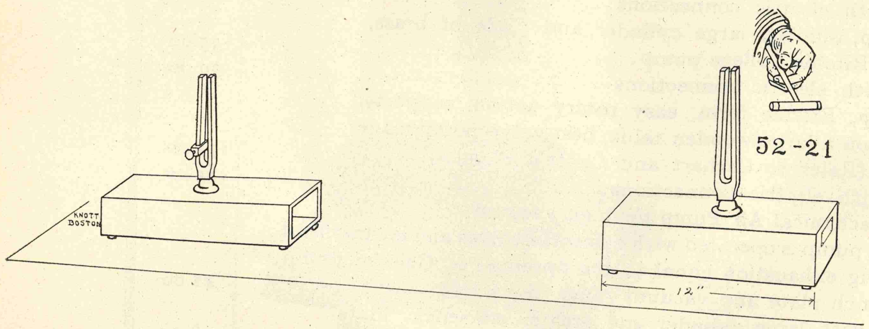

41-75

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	41-61	**Air Pump,** condensing and exhausting, with clamp for table, and connections for rubber tubing, (National Physics Course V)	5.00	
	41-62	**Thick Walled Antimony Rubber Tube,** for above ...... per foot,	.16	
	41-63	**Air Pump Plate,** mounted, with electric connections, iron base	6.00	
	41-71	**Air Pump,** Ritchie superior lecture table pump, lever action	25.00	
	41-72	Same, with electric connections	29.00	
	41-75	**Air Pump,** similar, large cylinder and plate of brass, Ritchie College pump	35.00	
	41-76	Same, with electric connections	39.00	
	41-79	**Air Pump,** Ritchie form, easy rotary action, supported on a large wooden table, best valve pump made. (Refer to Carhart and Chute's Physics)	175.00	
	41-80	Same, with electric connections	185.00	
		Geryk Mechanical Air Pump for high vacuum. This pump is operated with oil-sealed valves and is capable of giving exhaustion equal to the Sprengel or Geissler pump:—		
	41-83	With 7-inch plate and vacuum gauge, duty free	42.00	
	41-85	Similar with large cylinder and greater efficiency. Plate extra, duty free	48.00	
		Air Pump Attachments and Accessories:		
		Guinea and Feather Tube, refer to 24-61.		
	41-101	**Condensing Chamber**	5.00	
	41-103	**Leather Washers,** for stopcocks, plugs, etc. .... doz.,	.20	
	41-105	**Coupling,** for rubber tubing, fitting center of plate	.35	
	41-107	**Stopcock,** fitting center of plate (tested)	1.25	
	41-109	**Guard Plug,** fitting center of plate	.35	
	41-111	**Pump Oil,** for use on the valves and piston of the air pump .... per bottle,	.50	
		Bell Glasses. Our Bell Glasses are reground by hand and tested for use with air pump plates. Regular Glass Factory Ware will be furnished at a less expense, but they will not give the same satisfaction for this work.		
		Bell Glasses, straight sides, reground flange, **(tested,)** knob top:		
	41-121	6½x12 inches (2 gallon)	2.25	
	41-123	7½x14 inches (3 gallon)	3.25	
		Same, regular **Glass Factory Ware, not tested:**		
	41-126	6½x12 inches (2 gallon)	.65	
	41-128	7½x14 inches (3 gallon)	1.10	
		Bell Glasses, swelled sides, reground flange, **(tested,)** knob top:		
	41-131	6 inches inside diameter (1½ gallon)	2.25	
	41-133	7 inches inside diameter (3 gallon)	3.25	
		Same, regular **Glass Factory Ware, not tested:**		
	41-136	6 inches inside diameter (1½ gallon)	1.30	
	41-138	7 inches inside diameter (3 gallon)	1.90	



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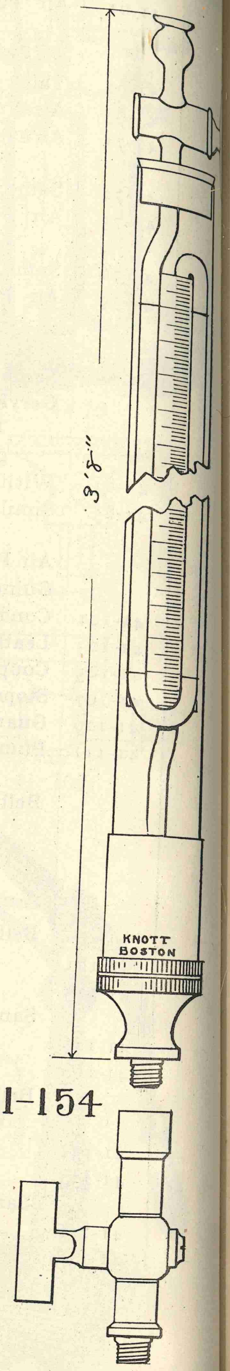

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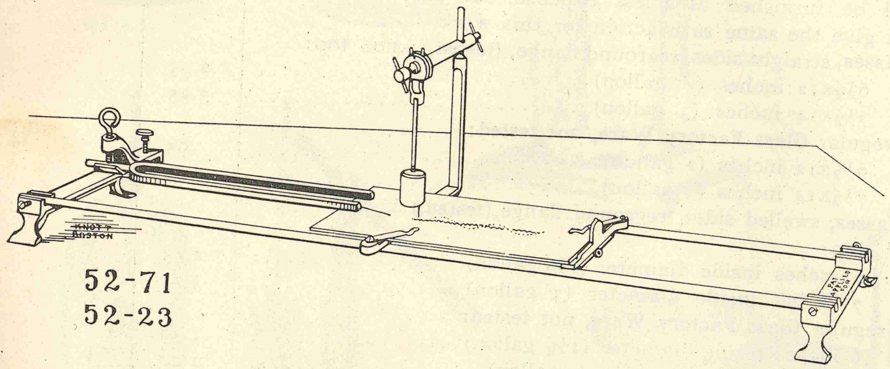

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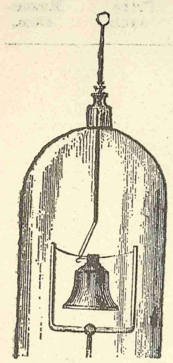
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS.		
	41-154	**Manometer, Barometer and General Apparatus** for demonstration of atmospheric pressure and exhaustion. Apparatus is to be exhausted on air pump and proper amount of mercury allowed to enter through the glass stopcock. It then may be used to demonstrate the atmospheric pressure as a barometer, and pressures more or less than the atmosphere up to the limit of the instrument, which is one meter. We substitute this especially in place of apparatus No. 41-161. Price without mercury	8.50	
	52-71	**New Apparatus for Recording the Vibrations of a Tuning Fork;** "Vilrograph;" patented. This new design is successfully used in the hands of laboratory students. Not including fork. Price	4.00	
		NOTE: Use forks 52-23 or 52-31.		
	52-21	**Sympathetic Tuning Forks,** accurately adjusted, 256 vibrations, mounted on tuned cases with weight and hammer. These forks are adjusted so that one will take up the vibrations of the other and continue the sound. Then if the one fork is loaded as illustrated, rapid or slow beats may be produced. The hammer is especially well constructed for giving the best results. Duty Free Price	18.00	
	52-21a	**Special Hammer** as included in above	1.50	



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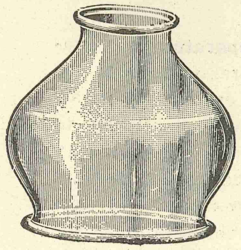

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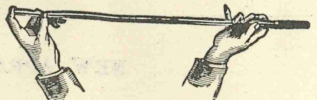

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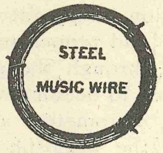

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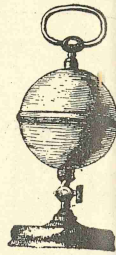

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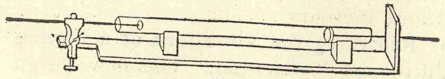

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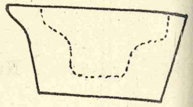

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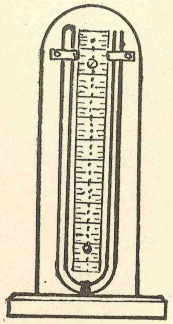

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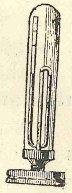

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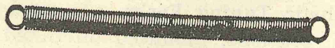

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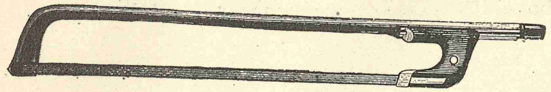

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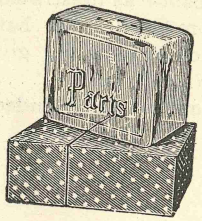

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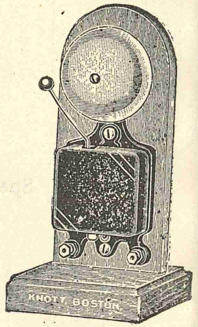

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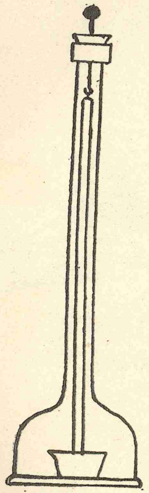

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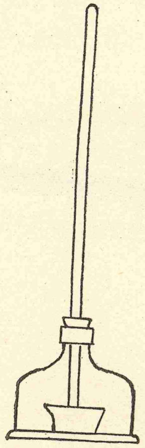

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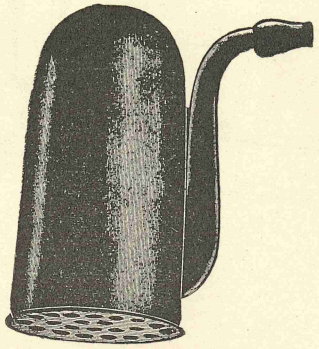

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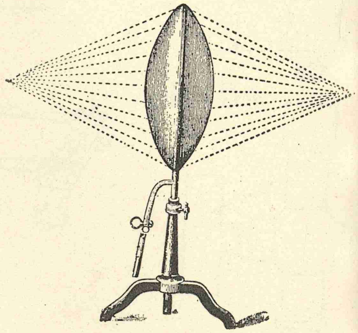


51-19

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	41-141	**Bell Glasses,** straight sides, reground flange, **tested,** brass cap, plug, sliding rods and packing box. This bell will take stopcock 41-107	3.50	
	41-147	**Bell Glasses,** hand and bladder glasses, or for use with mercury shower	.90	
	41-149	**Sheet Rubber,** thin ....per square foot, .35		
	41-151	**Magdeburg Hemispheres,** stopcock and handles, on stand	5.40	
		Manometer, refer to 63-13 and 63-15.		
	41-153	**Manometer (Mercury Gauge),** for use with air pump, fitting the vent	6.50	
	41-154	See page 43.		
	41-155	**Manometer (Mercury Gauge),** for use under a bell jar, on stand	2.75	
	41-156	**Barometer Tube,** (National Physics Course III)	.85	
	41-157	**Barometer Tube,** 80 cm., thick wall, large bore, (National Physics Course LXXIII)	.35	
	41-159	**Mercury Cup,** Cistern or Well, designed by F. M. Gilley, saves mercury	.40	
		Barometers, refer to Price List of Weather Bureau Supplies.		
	41-160	See page 37.		
	41-163	**Bell Glass,** with stopper, to accompany numbers 41-157 and 41-159	1.75	

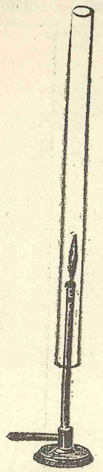
SECTION 50, SOUND,—GENERAL CLASSIFICATION.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	50-3	**Double Bass Bow,** (National Physics Course XCIII)	1.75	
	50-5	**Resin,** for same	.12	
		Piano Wire, in ¼ pound coils. (We do not recommend the spooled wire; it cannot be straightened readily):		

Catalog Number	50-7a	50-7b	50-7c	50-7d
Diam. inches,	.028	.022	.0178	.014
Price per coil	.45	.45	.85	1.55

SECTION 51, SOUND,—VIBRATION.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	51-3	**Electric Bell,** mounted for use in vacuum (National Physics Course LXXXV)	1.75	
	51-5	**Bell,** mounted for use in vacuum, to be operated with 41-141	1.75	
		Cord, for illustrating wave motion:		
	51-7	**Silk,** pliable	2.00	
	51-9	**Rubber,** flexible	.90	
	51-11	**Spiral Spring** (12 feet long), for demonstrating transverse and longitudinal wave motion	2.00	
	51-13	**Longitudinal Vibration Apparatus,** Kundt's method improved by Professor Chute, including: 2 pistons, vise, support, scale, tube and membrane, best results, complete	5.60	
	51-15	**Lycopodium Powder** ....package, .25		
	51-17	**Ear Trumpet,** (National Physics Course LXXXVIII)	2.75	
	51-19	**Sound Lens**	11.50	



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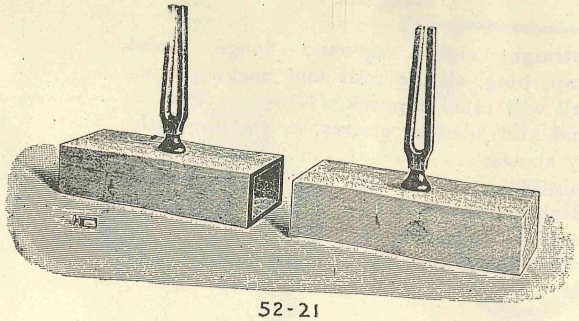

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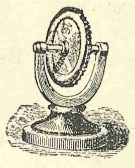

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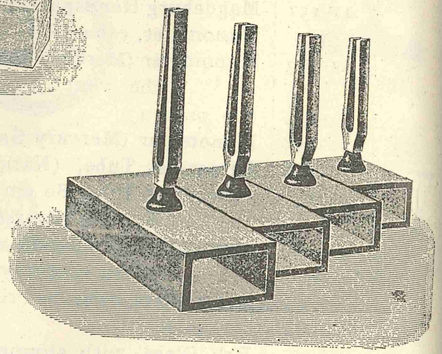

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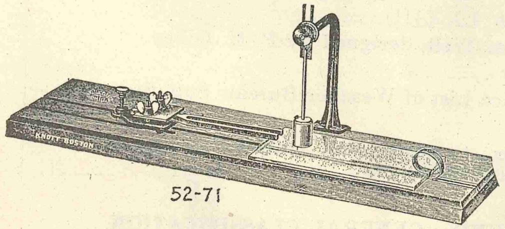

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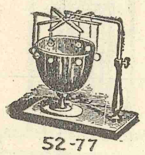

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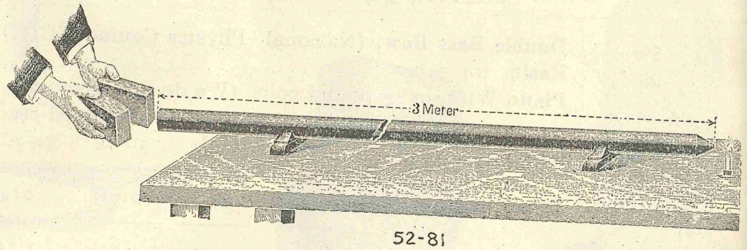

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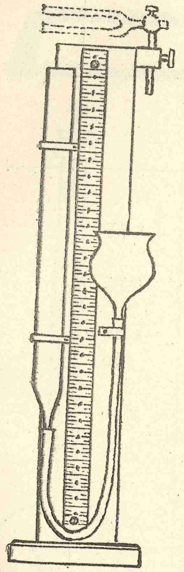

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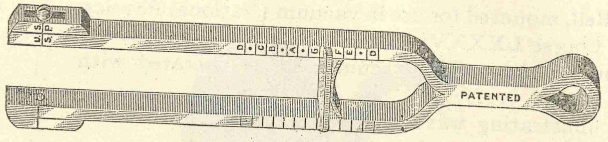

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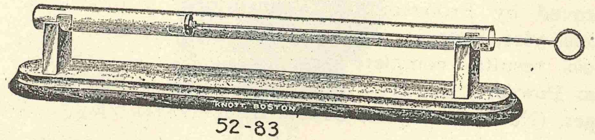

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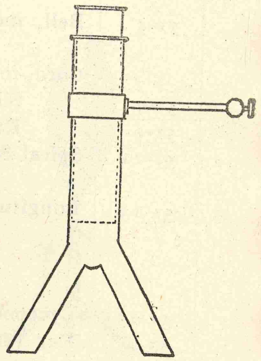
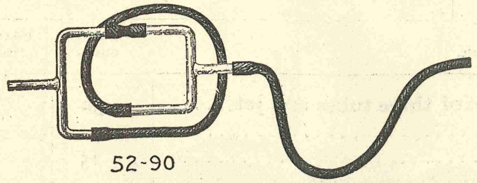


52-87

SECTION 52, SOUND,—NOISE, MUSICAL SOUNDS, PITCH, TIMBRE, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	52-3	**Singing Flame or Philosopher's Lamp,** set of three tubes and jet......	2.50	
	52-5	**Rose Jet,** Ritchie's........	1.50	
	52-6	**Tube** for same........	2.25	
	52-21	**Sympathetic Tuning Forks,** accurately adjusted, 256 vibrations, (C1), mounted on resonant cases, duty free, best. See page 43........pair, 18.00		
	52-22	Similar, lighter, (National Physics Course XCII) pair, 12.00		
		Tuning Forks:		
	52-23	10 inches, 128 vibrations C........	4.50	
	52-27	11 inches, 256 vibrations C1........Duty free	6.00	
	52-28	Same, mounted on tuned case........ " "	9.00	
	52-31	7 inches, 256 vibrations C1, (National Physics Course, No. 95)........	1.50	
	52-45	4½ inches, 256 vibrations C1........	.20	
	52-47	4½ inches, (A, natural)........	.20	
	52-49	Set of four forks, standard, unmounted, C1, E, G, C2........	6.00	
	52-50	Same, mounted on tuned cases........	12.00	
	52-53	Set of eight (Octave), 6 to 7¾ inches long........set, 12.00		
	52-54	Same, mounted on tuned cases........	24.00	
	52-61	**Adjustable Tuning Fork,** giving the octave by half tones........	1.50	
		Note.—To vibrate tuning forks use cotton string, drawing it tightly around the tines until it breaks.		
	52-71	**Apparatus,** for recording the vibrations of a tuning fork, coincident with records of a pendulum. For calculating the vibrations per second of the fork. Used in the National Physics Course No. 96. See page 43	4.00	
	52-73	**Bristle Stylus and Special Wax,** for use on a recording tuning fork........	.25	
	52-75	**Savart's Wheel,** for illustrating musical pitch,—a lecture table piece designed by Ritchie........	7.50	
		Savart's Wheel, refer to 21-43		
		Bell, with cork balls illustrating nodes:		
	52-77a	**Large Glass Bell** to be vibrated by a bow........	4.00	
	52-77b	**Metal Stand and Frame,** supporting eight cork balls........	4.00	
	52-81	**Tyndall's Tube,** as used in the National Physics Course, 11 feet long, in sections, metal........	4.00	
	52-83	**Resonant Tube,** mounted, with piston, according to the National Physics Course No. 94........	2.25	
	52-85	**Resonant Tube,** mounted vertically, with graduated scale, for use with the water piston; nodes determined readily and accurately........	5.50	



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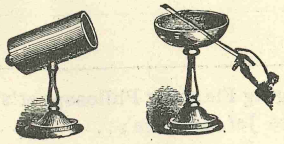

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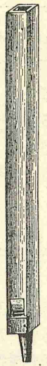

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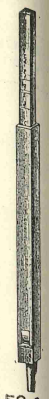

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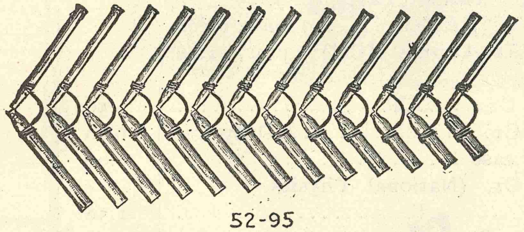

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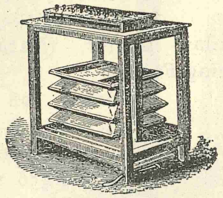

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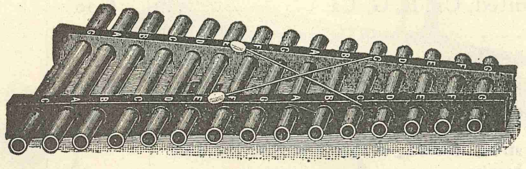

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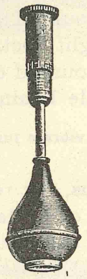

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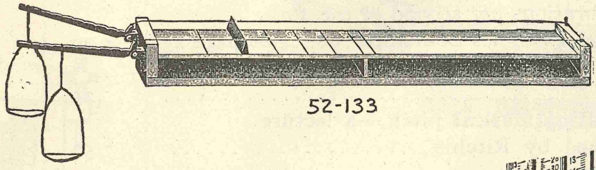

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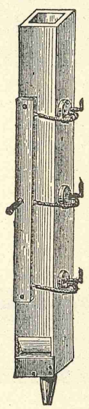

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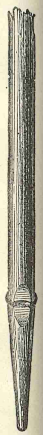

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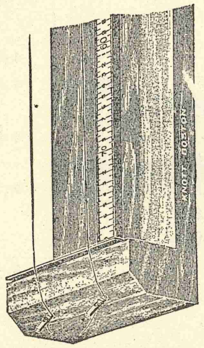

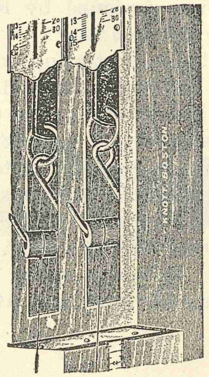

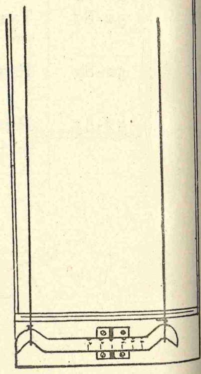

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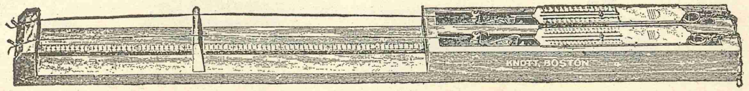
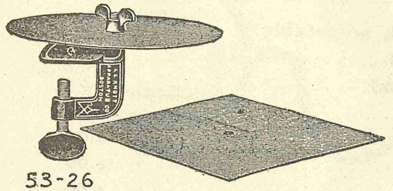


52-129

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	52-87	**Interference Tubes,** Hopkins', of metal, with adjustable tube, for use with Chladni plates	4.00	
	52-89	**Clamp,** for attaching above to laboratory stand	1.75	
	52-90	**Interference Tubes,** of glass and rubber	2.00	
	52-91	**Savart's Bell and Resonant Tubes**	4.00	
	52-91a	**Polished Brass Bell,** on stand	4.00	
	52-91b	**Closed Resonant Tube,** with piston	4.00	
	52-93	**Adjustable Resonant Tube,** open, with movable inner tube	4.00	
	52-95	**Quincke's Tubes,** to show the effect of size and length of tube on pitch; also shows interference, set of thirteen	2.75	
	52-97	**Organ Pipe,** with sliding piston, (National Physics Course XCVI)	4.00	
	52-99	**Organ Pipe,** with glass side and sliding membrane	4.00	
	52-101	**Organ Pipes,** in set, metal, C, E, G, C1	7.00	
	52-121	**Galton's Whistle,** for illustrating sounds which are inaudible to the human ear; adjustable; air column may be shortened to one millimeter. Calculated vibrations 85,000 per second	5.00	
	52-123	**Wind Chest,** for operating organ pipes	40.00	
	52-125	**Xylophone,** with fifteen tubes on wooden frame, covers two octaves	2.50	
	52-127	**Sonometer,** with strings, as used in the National Physics Course, XCIV, for determining pitch according to length, cross-section and strain; used with two spring balances. Price without balances	4.00	
	52-129	Same, with two large spring balances, adapted and fitted	7.25	
	52-131	**Sonometer Strings,** 0.014 and 0.028 inches diameter, pair,	.40	
	52-133	**Sonometer,** with resonant base, the wires to be adjusted by levers and weights, and finer adjustment by key; price without weights	5.75	
	52-134	Same, with pulleys	6.50	
	52-135	Same, with Ritchie's patent ratio lever, automatic adjustment of relative tension of strings	16.00	
		Weights, refer to 12-93.		

SECTION 53, SOUND,—GRAPHIC REPRESENTATION.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	53-3	**Helmholtz Resonators,** set of eleven harmonies of C2, of superior construction and operating quality, from papier mache, duty free	18.00	
	53-7	**Manometric Organ Pipe,** for attachment to flame, and for use with manometric mirror, duty free	22.00	
	53-9	**Manometric Flame Apparatus.** A chamber having a diaphragm, for connection with gas; including speaking tube and four-sided revolving mirror for connecting with rotating machine, set,	7.50	
	53-11	Same, but double mirror, to be rotated by hand	3.35	



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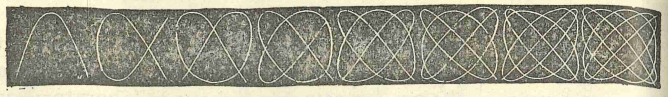

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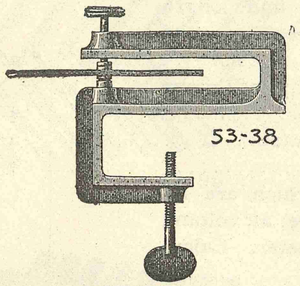

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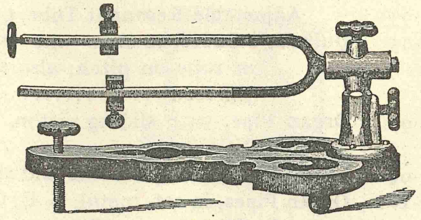

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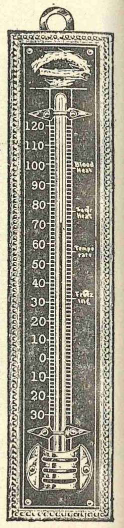

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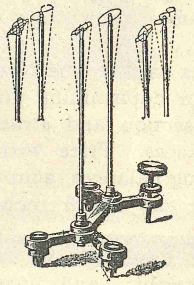

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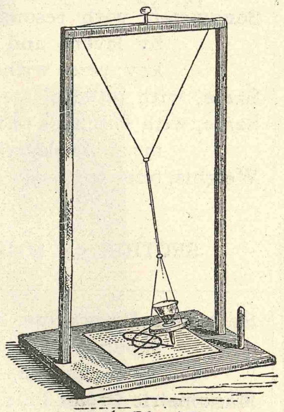

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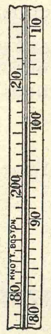

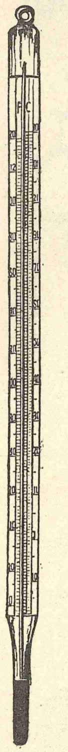

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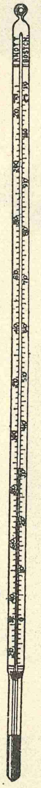


61-71

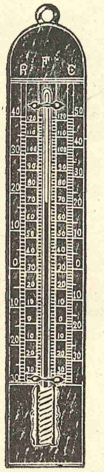
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		Chladni Plates,		
	53-20	**Plate,** round, of polished brass, 10 inches in diameter	1.50	
	53-26	**Plate,** round, of polished brass, 6 inches in diameter	1.00	
	53-30	**Plate,** square, of polished brass, 10 inches	1.50	
	53-36	**Plate,** square, of polished brass, 6 inches	1.00	
	53-37	**Clamp,** iron, strong, to fit top of laboratory table	1.25	
	53-38	**Clamp,** iron, double, large	3.90	
	53-41	**Lissajou's Figures Apparatus,** consisting of two large forks with properly mounted mirrors. Adjustable to combinations 1 to 1; 1 to 2; 2 to 3; 3 to 4; and 4 to 5. Of superior quality, duty free	35.00	
	53-43	**Lissajou's Figures Apparatus,** with two adjustable steel springs for elementary demonstration, Tyndall design .....set, 6.50		
		Crova's Disc, illustrating sound waves, etc., refer to 21-31		
	53-47	**Sand Pendulum,** consisting of weight, cord and funnel	1.85	

SECTION 60, HEAT,—GENERAL.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	60-3	**Regelation Mold for Ice,** boxwood	2.50	
	60-4	**Bag** for use in breaking ice, (National Physics Course, No. 91)	.35	
	60-5	**Tray for Ice,** one outlet, for cooling dry air tube No. 61-125 according to the National Physics Course, No. 88	.75	
		(Refer for Burners, Lamps, Gas Lamps and Stoves to Catalog of Chemical Laboratory Supplies.)		

SECTION 61, HEAT,—TEMPERATURE, EXPANSION, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	61-3	**Household Thermometers,** clear divisions, finely mounted. Send for special list of Household Thermometers	.75	
	61-51	**Chemical Thermometers,** Jena glass, large bulb, long stem, paper scale inside glass tube; range -10 degrees to +110 degrees, with equivalent Fahrenheit scale, 30 cm. long, (National Physics Course, No. 82)	.90	
	61-53	Same, eight inches long	.45	
	61-55	**Chemical Thermometer,** similar, range -10 degrees to +200 degrees C. and equivalent Fahrenheit scale	1.50	
	61-71	**Chemical Thermometer,** similar, but having the scale etched on glass, black figures, white back, range -10 degrees to +110 degrees C. and equivalent Fahrenheit scale	1.30	
	61-73	**Chemical Thermometer,** scale etched on glass, similar to the preceding; +200 degrees C. and +400 degrees F.	1.70	
	61-75	**Chemical Thermometer,** similar, but having a range to 400 degrees C. and equivalent scale 640 degrees F.	2.25	
		Note.—Send for special list of large variety of Chemical Thermometers.		
	61-91	**Comparative Thermometer:** Centigrade, Fahrenheit and Reaumur	.80	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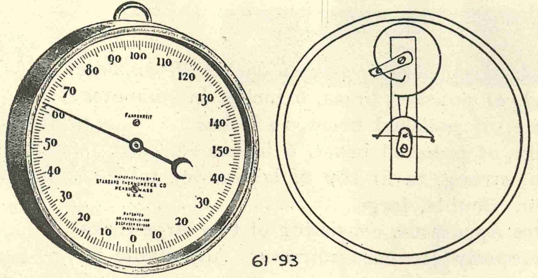
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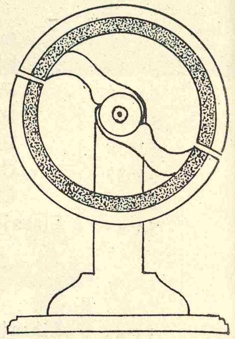
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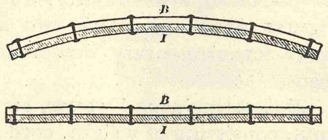

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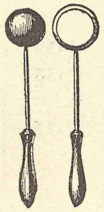
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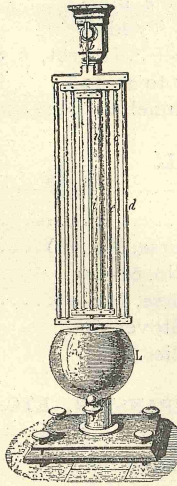
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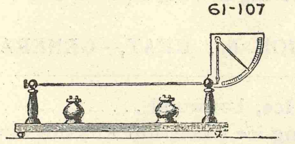
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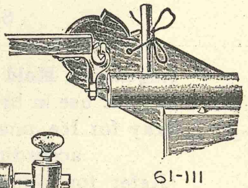
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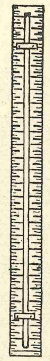
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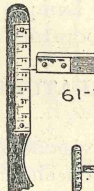
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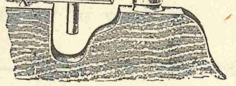
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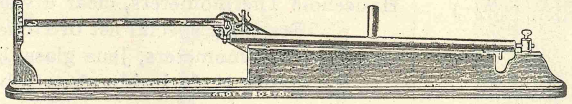
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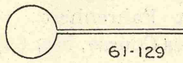
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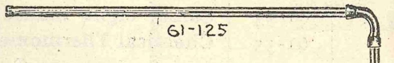
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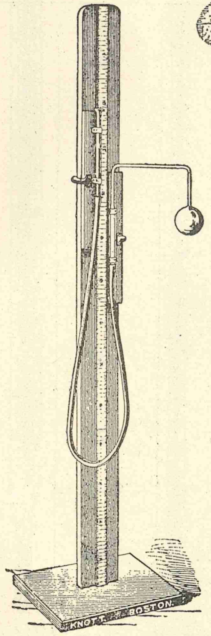
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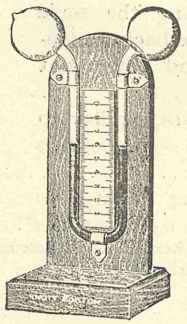
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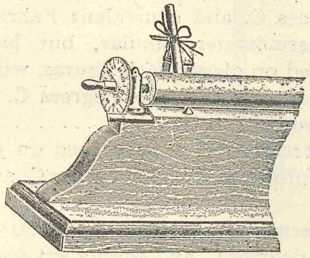
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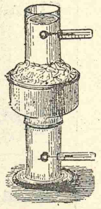
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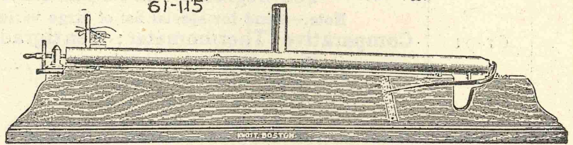
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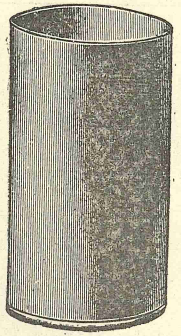
Quantity wanted	Cat. No.	Description.	Price each.	Extension.
	61-93	**Metallic Thermometer,** with glass back for showing the mechanism, (National Physics Course, LXVI) .... For Maximum and Minimum Thermometers, and Wet and Dry Bulb Thermometers, etc., see page 84.	4.00	
	61-103	**Wood Model of Clock Balance Wheel,** of such shape that it illustrates the principle of the compound bar as applied to the balance wheel of a time piece operating at a uniform rate of vibration, (National Physics Course LXVII)	1.50	
	61-105	**Compound Pendulum,** showing the compound bar as applied to a clock pendulum	9.00	
	61-107	**Compound Bar,** to show the unequal expansion of two metals, (National Physics Course LXV.)	1.25	
	61-108	**Gravesend Ring and Ball** for illustrating expansion, (National Physics Course, LXIII)	1.50	
	61-109	**Lecture Table Pyrometer,** Ritchie design, demonstrating linear expansion due to increase of temperature, consisting of two rods of different metals, including stand and lamp	4.20	
	61-111	**New Linear Expansion Apparatus,** patented, lever mounted on knife edge; all errors reduced to a minimum; as used in the National Physics Course 84, 85, 86 (send for circular)	3.75	
	61-115	**New Linear Expansion Apparatus,** micrometer screw form, with zero reference lever, capable of very close results	4.25	
		Note.—The advantage of the wooden frame over the metal frame is apparent, when error from expansion of the metal frame is considered.		
	61-116	**Extra Aluminum Rod,** for 61-111 and 61-115	.60	
	61-117	**Extra Iron Rod** for 61-111 and 61-115	.35	
	61-121	**Apparatus for illustrating the Maximum Density of Water,** consisting of a glass cylinder with copper vessel and aperture for thermometer at top and bottom. Use Thermometer No. 61-53	6.50	
		Charles' Law Tubes, dry air, confined by mercury:		
	61-125	Form according to the National Physics Course, No. 87. Use Tray 60-5	2.00	
	61-127	**Form,** according to Waterman, mounted	1.75	
	61-129	**Simple Air Thermometer** glass bulb on stem, National Physics Course LXII	.25	
	61-131	**Constant Volume Air Thermometer,** mounted on adjustable frame with metric scale, for teaching absolute zero, etc., (National Physics Course LXIX) (send for circular)	9.00	
	61-133	**Air Thermometer,** differential, filled with colored liquid, for use under the bell glass, (National Physics Course LXXVIII)	2.50	



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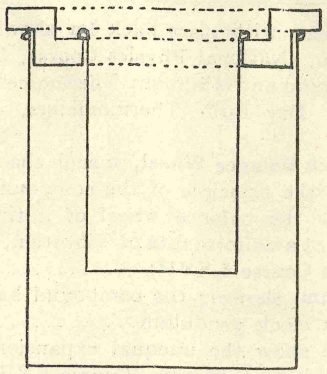

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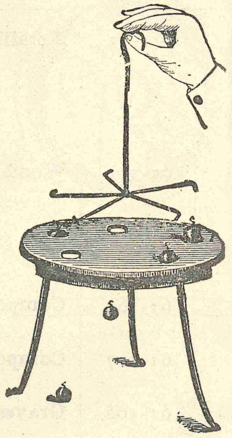

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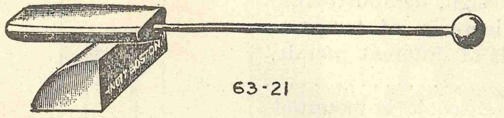

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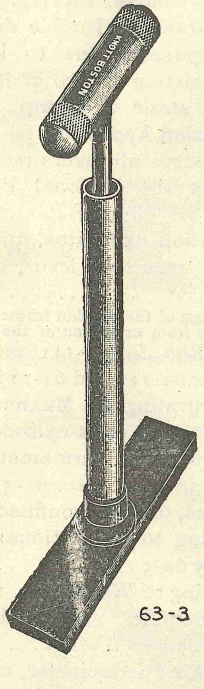

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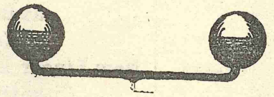

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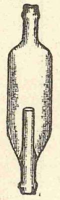

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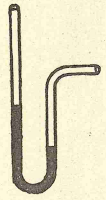

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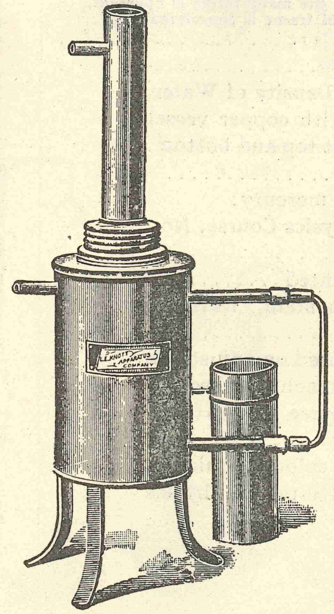

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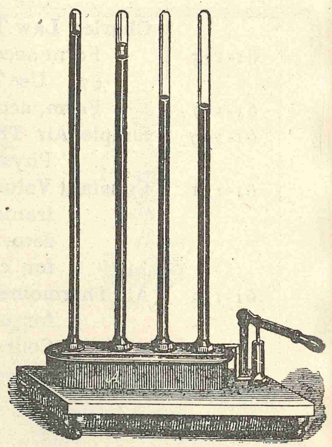


63-23

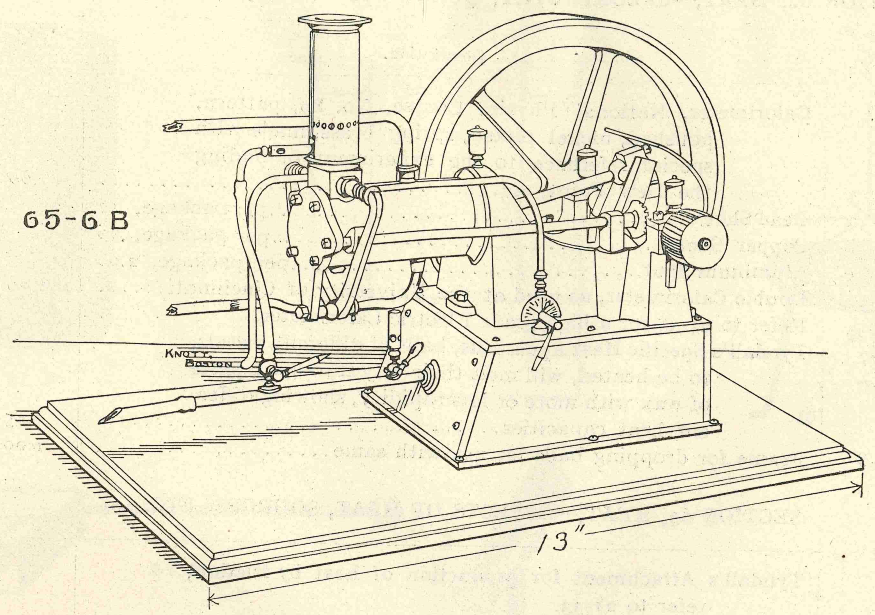
SECTION 62, HEAT,—CALORIMETRY, QUALITY OF HEAT, SPECIFIC HEAT, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	62-3	**Calorimeter,** National Physics Course, No. 89, pattern, polished, nickel plated, spring brass, made with special reference to the experiment of finding the Dew Point, etc.	.60	
	62-3a	**Lead Shot** ......per package, .12		
	b	**Copper Shot** ......per package, .60		
	c	**Aluminum Shot** ......per package, 2.00		
	62-5	**Double Calorimeter,** as used at the University of Cincinnati	1.30	
		Refer to 93-38 for a high grade Electric Calorimeter.		
	62-7	**Tyndall's Specific Heat Apparatus,** balls of different metals, to be heated, will melt their way through a plate of wax with more or less rapidity, showing different heat capacities	2.25	
	62-8	Frame for dropping balls for use with same	1.00	

SECTION 63, HEAT,—EFFECTS OF HEAT, SOURCES, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		Tyndall's Attachment for production of heat by friction, refer to 21-33.		
	63-3	**Fire Syringe,** for illustrating the transference of energy into heat, very successful, (National Physics Course LXXVII)	1.75	
	63-5	**Apparatus A (Steam Generator or Hypsometer)** as used in the National Physics Course, No. 80, modified and improved by F. M. Gilley, including boiler, water gauge, screw cap, thermometer tube, heating bucket and special burner	3.00	
	63-7	**Apparatus A,** similar to above, but with copper alcohol lamp instead of Bunsen burner	3.00	
	63-9	**Apparatus A,** similar to above, without burner or lamp	2.60	
	63-11	**Apparatus A,** designed by G. M. Turner of Buffalo, similar to above, but with detachable tripod, without burner or lamp	3.00	
	63-13	**Pressure Gauge,** new form, 30 cm., of size to fit the Apparatus A, (National Physics Course XIII and 80a)	.30	
	63-15	**Pressure Gauge,** similar to preceding, 1 meter long, for higher pressures, may be used for exhaustion or compression, (National Physics Course, No. 70) (use with stand 41-43)	1.50	
	63-17	**Glass Trap,** for catching condensed steam; special form for heat experiments, (National Physics Course, No. 92)	.30	
	63-19	**Pulse or Palm Glass,** two bulbs, with colored liquid	.50	
	63-21	**Trevelyan Rocker,** illustrating the radiation of heat, producing a musical sound, (National Physics Course LXVIII)	2.40	
	63-23	**Cooke's Apparatus,** for liquefaction of gases by compression; operating to 16 atmospheres	45.00	

65-6 B



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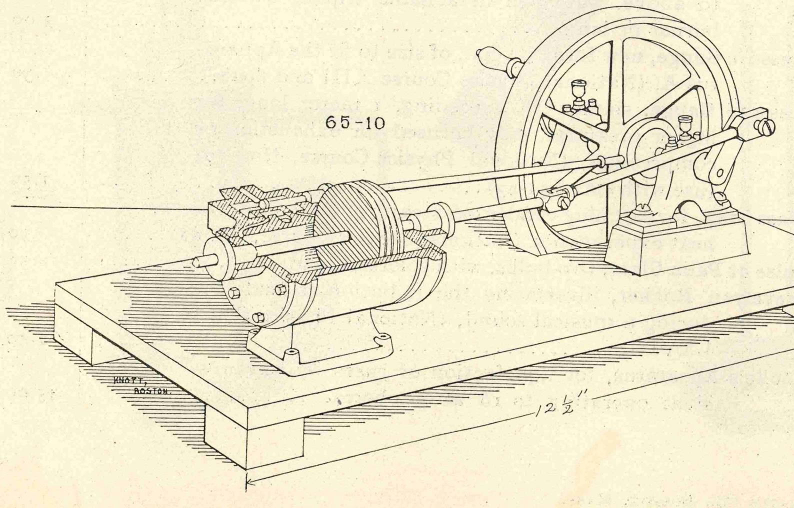

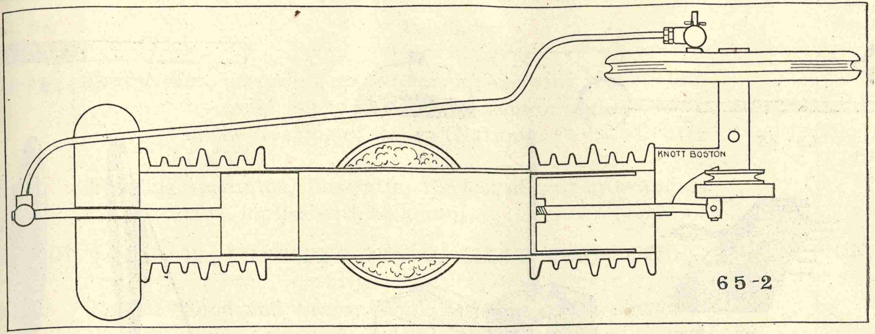

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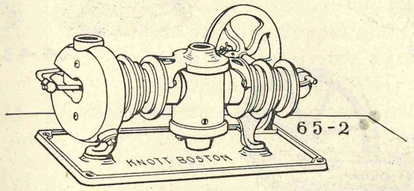
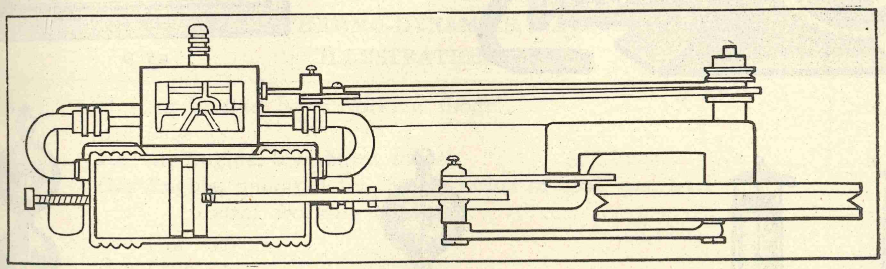
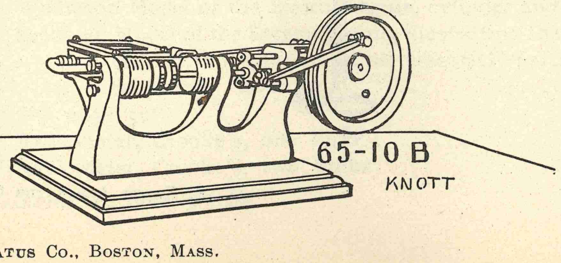


65-2

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS.		
	65-6a	**Gas Engine,** 1-40th horse power with water jacket, and hot tube ignition. A complete plant ready to connect with the gas and operate. Duty Free Price....	55.00	
	65-6b	Similar Engine 1-80th horse power. Duty Free Price..........	21.00	
	65-10	**Model of the Steam Engine,** made from metal, of neat and reliable construction. Duty Free Price...............	12.00	
	65-10b	**Model of the Steam Engine** with glass cylinder and with glass cover over the sliding valve, to be operated by compressed air................................	15.00	
	65-2	**Model of the Hot Air Engine,** large model, to be operated on gas	12.00	

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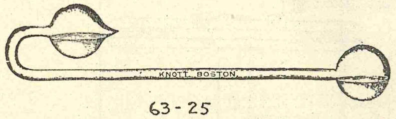
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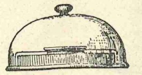
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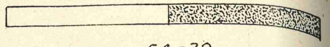
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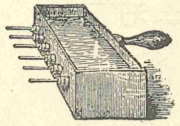
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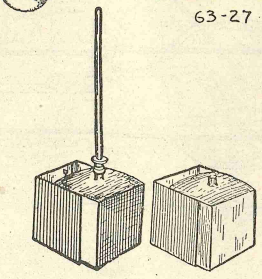
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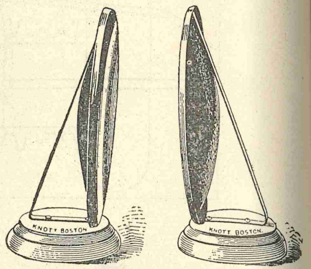
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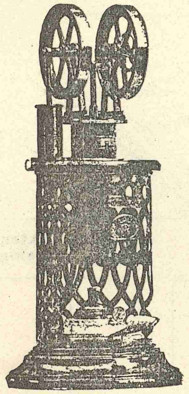
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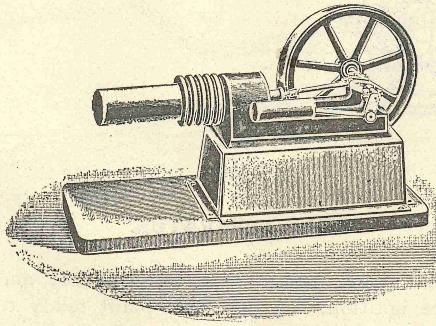
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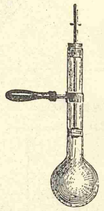
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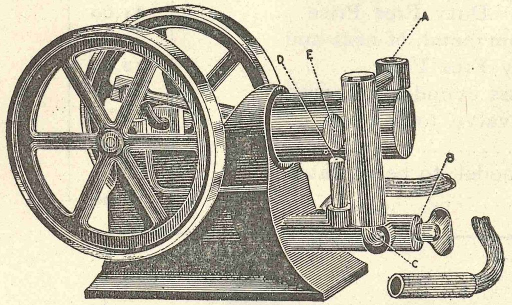

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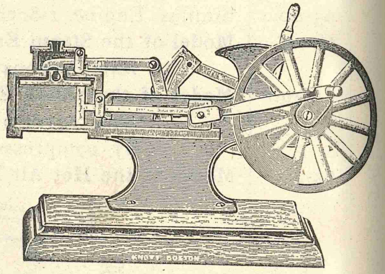
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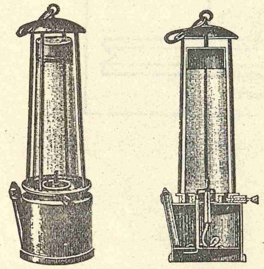
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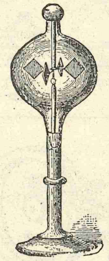
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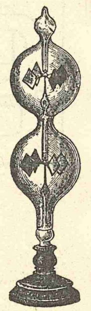

65-13

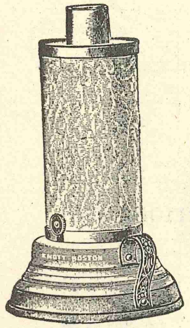
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	63-25	**Cryophorus,** according to Wollaston, showing the cooling by rapid evaporation in a vacuum and resulting in the freezing of water, (National Physics Course LXXVI)	2.00	
	63-27	**Freezing Apparatus,** illustrating the loss of heat by evaporation, for use with air pump	1.80	

SECTION 64, HEAT,—TRANSFERENCE OF HEAT, CONDUCTION, CONVECTION, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	64-29	**Rod of Wood and Brass,** for illustrating relative conductivity, as used in the National Physics Course LIX	.65	
	64-31	**Three Rods of Iron, Copper and Glass,** for illustrating relative conductivity, per set of three, (National Physics Course LVII)	.35	
	64-33	**Conductometer,** a copper vessel with projecting rods of different materials, for illustrating relative conductivity; heat is conducted from the hot water in the vessel	4.00	
	64-35	**Shot and Wax,** for above ....per package, .20		
	64-39	**Leslie's Cubes,** (National Physics Course LXXIX) for illustrating radiation and absorption, according to surface and color; to be filled with hot water and used in connection with differential thermometer 61-133 and reflectors 64-43........pair, 3.00		
	64-41	**Miner's Safety Lamp,** Davy	4.00	
	64-43	**Reflectors,** concave, highly polished, ten inches in diameter, mounted for use in reflecting heat or sound; (National Physics Course LXXXIV) ....pair, 6.00		
	64-45	**Two Stands,** with one iron ball for use with 64-43........set, 3.00		
	64-67	**Convection Currents Apparatus,** (according to the National Physics Course LXI) for showing the convection currents in a liquid	1.20	
	64-69	**Convection Currents Apparatus,** according to Gage, to show the convection currents in a gas	1.20	

SECTION 65, HEAT,—THERMO-DYNAMICS, NATURE OF HEAT, THEORIES, ILLUSTRATIONS, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	65-3	**Hot Air Engine,** large working model	12.00	
	65-4	See page 57.		
	65-5	**Hot Air Engine,** horizontal model	2.50	
	65-6	**Gas Engine,** operated by the explosion of coal gas, horizontal working model	3.00	
	a	See page 57.		
	b	See page 57.		
	65-7	**Wollaston Model of the Steam Engine,** cylinder and piston	1.50	
	65-9	**Sectional Model of the Steam Engine,** illustrating the operation of the valves, and all essential parts, with reversible lever	3.50	
	65-10	See page 57		
	65-11	**Radiometer,** Crooke's, one bulb	1.75	
	65-13	**Radiometer,** Crooke's, two bulbs	4.00	



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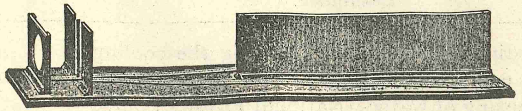

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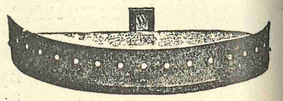

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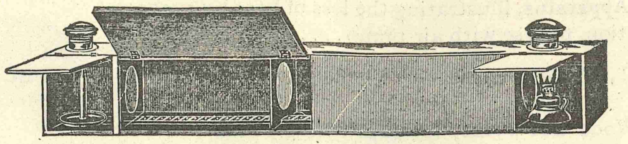

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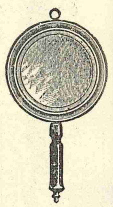

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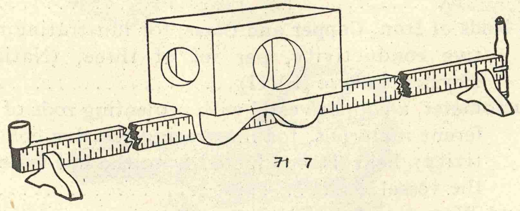

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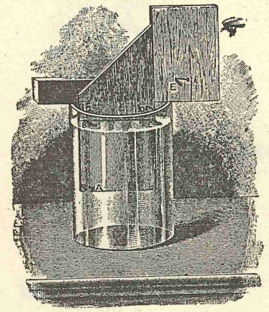

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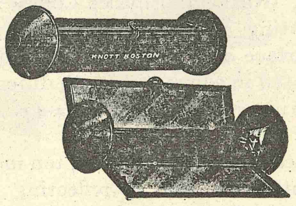

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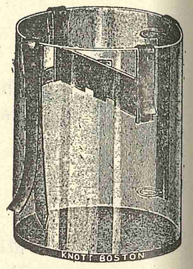

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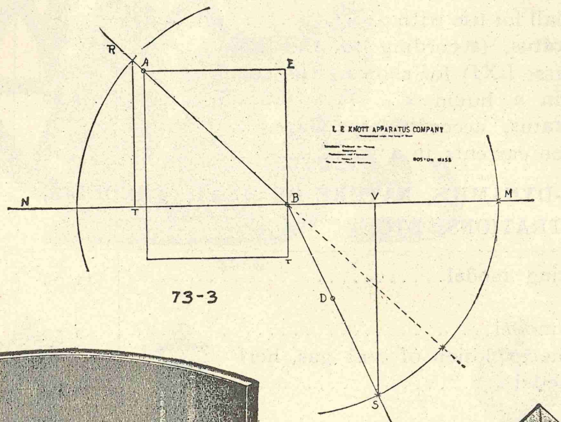

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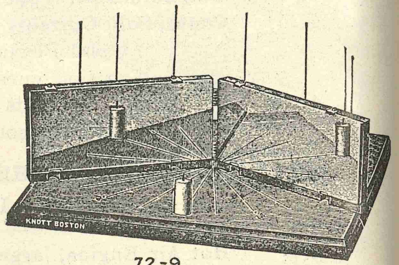

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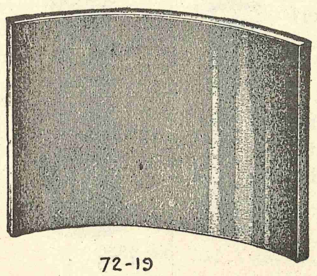

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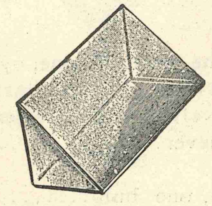

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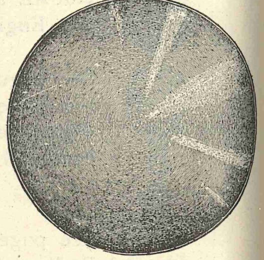


72-17

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	70-3	**Kerosene Lamp** with asbestos chimney (N. P. C. No. 33)	.50	
	73-5	**Standard Candles**	.50	
	73-7	**Paraffine Candles** superfine doz. 25		

SECTION 71, LIGHT,—GENERAL RAYS, SHADOWS, ETC.

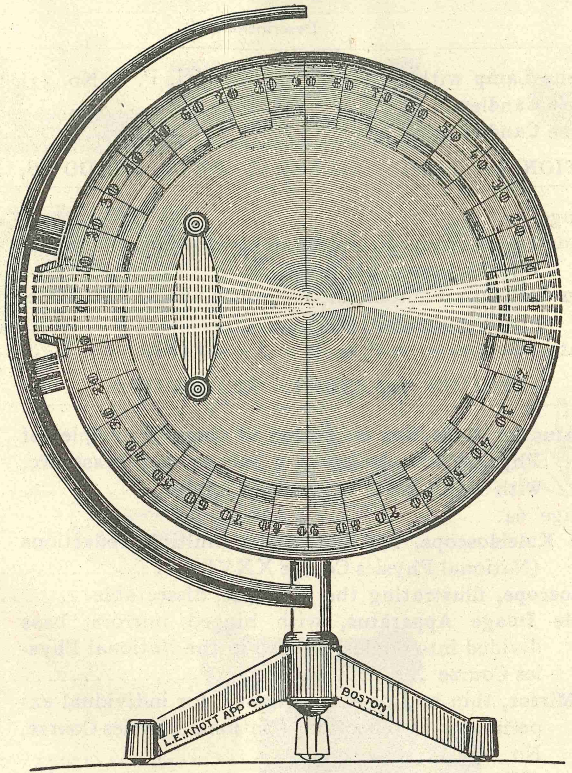
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	71-1	See Page 64.		
	71-3	**Photometer,** according to Rumford, as used in the National Physics Course	4.00	
	71-5	**Bunsen Standard Photometer,** enclosed, with hood, scale, mirrors, screens, etc.	7.50	
	71-7	**Students Photometer** with scale and hood (Ritchie)	5.00	

SECTION 72, LIGHT,—REFLECTION.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	72-3	**Apparatus for Reflection** according to Gage (Principles of Physics), consisting of a mirror and brass arc, with sight holes at various angles	1.50	
	72-4	See Page 64.		
	72-5	**Simple Kaleidoscope,** for illustrating multiple reflections (National Physics Course XXVI.)	.70	
	72-7	**Kaleidoscope,** illustrating the principle, dissectable	2.50	
	72-9	**Multiple Image Apparatus,** with hinged mirrors, base divided into angles; as used in the National Physics Course XXV	2.00	
	72-11	**Plain Mirror,** thin and of extra quality, for individual experiments in reflection, (National Physics Course, No. 23)	.18	
	72-15	**Spherical Mirrors,** glass, concave and convex, mounted in one frame	3.00	
	72-17	**Spherical Mirrors,** metal, 3 inches diameter, concave and convex, (National Physics Course XXVII)	.60	
	72-19	**Cylindrical Mirror,** metal, concave and convex, for individual experiments in obtaining focii, etc., (National Physical Course, No. 27)	.60	
		Mirrors, pair of concave, refer to 64-43.		
	72-21	**Flint Glass Prism,** 45 and 90 degrees, flat ends, used to demonstrate total reflection, etc., (National Physics Course XXXI)	.60	

SECTION 73, LIGHT,—REFRACTION LAWS, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	73-3	**Refraction Plate,** polished glass, as designed by F. M. Gilley, (National Physics Course, No. 28)	.30	
	73-5	**Refractive Index of Water Apparatus,** according to the National Physics Course, as follows: set, .70		
	73-5a	**Partition,** brass, to fit glass jar, (National Physics Course, No. 29)	.20	
	73-5b	**Indicator and Plunger,** pair, (National Physics Course, No. 30)	.20	
	73-5c	**Jar,** refer to 91-60	.25	
	73-7a	**Refractive Index of Water Board,** according to F. M. Gilley, capable of accurate results	.75	
	73-7b	**Jar,** for preceding, refer to 91-62	.40	
	73-15a	**Block and Indicating Wire,** for the critical angle of water (National Physics Course XXIX)	.20	
	73-15b	**Basin,** for above, (National Physics Course XXVIII)	.30	



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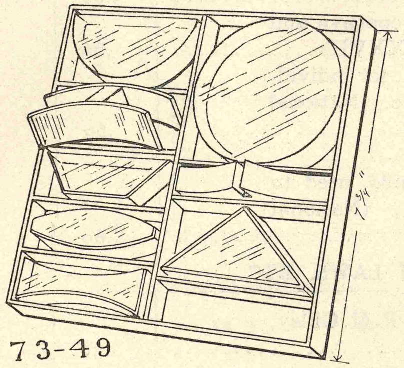

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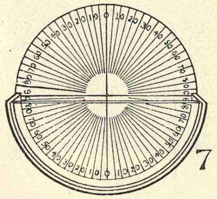

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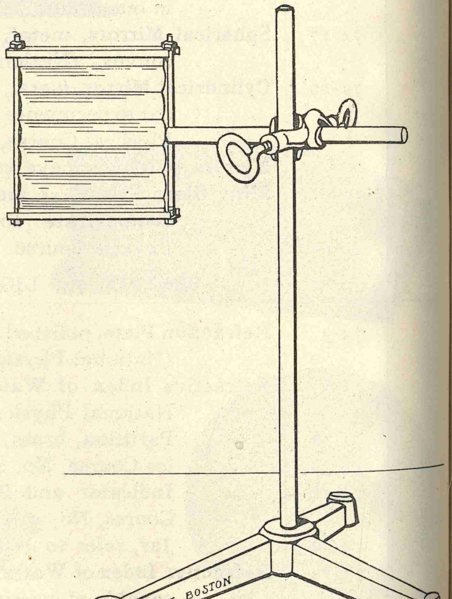

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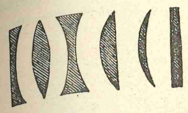

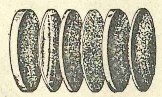

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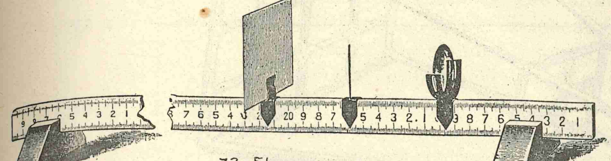

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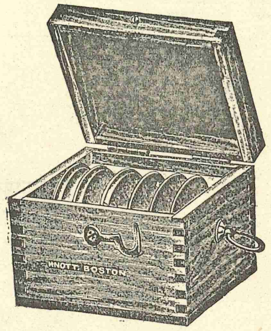
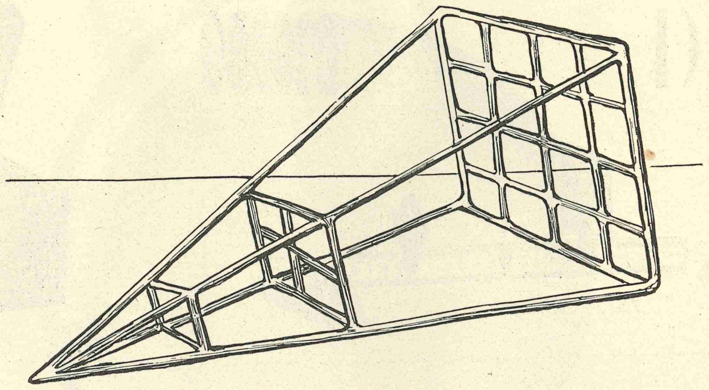


73-21

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	73-18	See Page 64.		
	73-21	**Demonstration Lenses,** illustrating the six different forms 2 inches diameter, in oak case..................set, 2.70		
	73-23	**Set of Lenses,** diameter 1½ inches, in box, (National Physics Course XXXIV) for demonstration...........set 1.50		
		Lenses, Double Convex, for illustrating the principle of the telescope, opera glass, burning glass, etc:—		
	73-27	Diameter 4 cm., focus 12 cm...........................	.20	
	73-29	Diameter 4 cm., focus 15 cm., (National Physics Course, No. 31)....................................	.20	
	73-31	Diameter 8 cm., focus 15 cm...........................	1.20	
	73-33	Diameter 3½ cm., focus 5 cm...........................	.80	
	73-35	Diameter 10 cm., focus 40 cm..........................	1.80	
	73-49	**New Kolbe Light Demonstration Apparatus,** for demonstrating the laws of optics, for lecture table work. Disc with stand and set of lenses in case. Outfit complete...................................	17.50	
		Send for Circular 363.		
	73-49k	**Refraction Tank,** for use with 73-49.....................	4.00	
	73-49l	**Diverging Ray Attachment** with stand and short focus lens with diaphragm..................................	5.00	
	73-49	**Enameled Refraction Plate** for Lecture Demonstration, of the student apparatus 73-3. Very successful..........	2.00	
	73-51	**Apparatus for Experiments with Lenses** (Optical Bench), for individual work, to be used with meter stick, as in the National Physics Course, as follows:....set, 1.14		
	73-51a	**Lens Holder,** (National Physics Course, No. 31a)	.23	
	b	**Pin Holder**..	.12	
	c	**Screen Holder,** (National Physics Course, No. 32a)......	.15	
	d	**Cardboard Screen,** printed, (National Physics Course, No. 32)..	.10	
	e	**Supports for Meter Stick**.........................pair, .14		
	f	**Meter Stick,** refer to 11-31		
	g	**Lens,** refer to 73-29.		
	73-52	See Page 64.		
	73-53	**Bent Wire,** for Indicator, (National Physics Course, No. 34)..........	.05	
	73-55	**Block,** with white face, (National Physics Course, No. 25)	.15	



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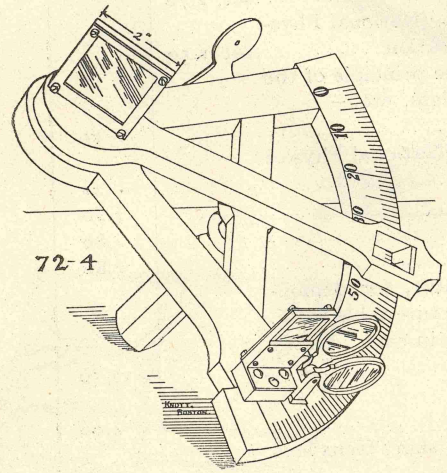

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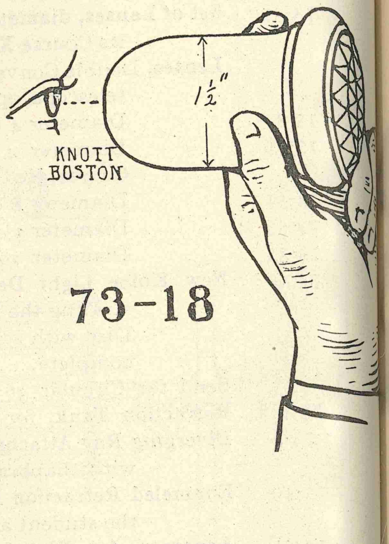

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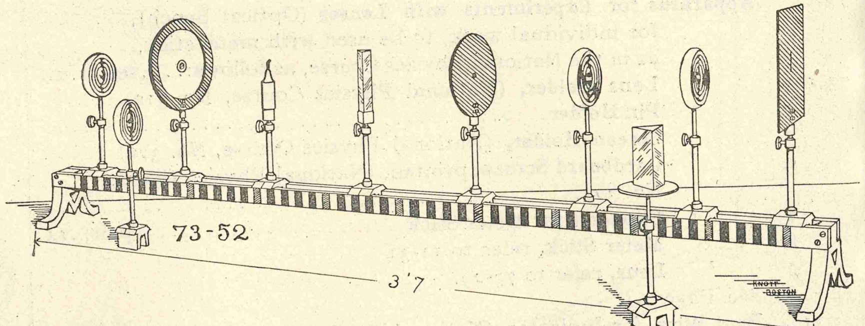
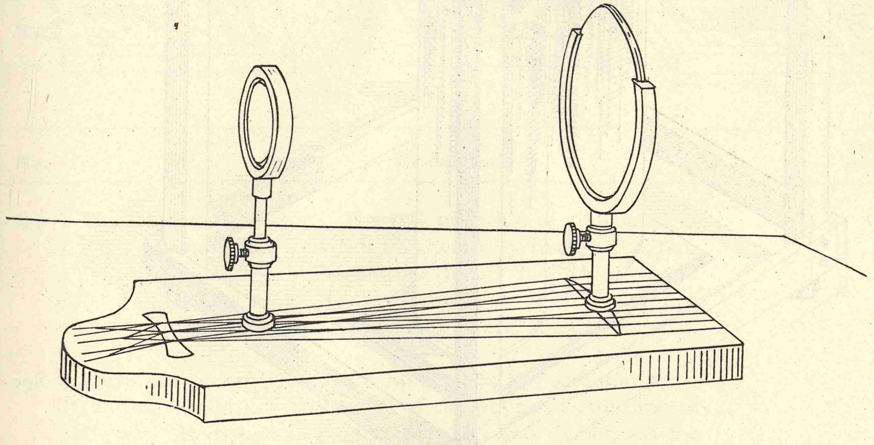


73-52

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS.		
	71-1	**Law of Shadows Frame,** designed to show at a glance the law of area, distance and intensity. Price............	2.00	
	72-4	**Sextant,** wooden model, nicely finished, for demonstrating the use of the sextant, especially adapted for instruction in physical geography. Duty Free..........	12.00	
	73-18	**Optical Bench or Stand,** marked plainly in centimeters, for use on lecture table. Adjustable stands support various concave and convex lenses and other attachments. This may be used in showing refraction, spectrum, Bunsen photometer, concave and convex lens, telescope, opera glass, demonstration of the focii of lenses, etc. Duty Free Price..	34.00	
	73-52	**Many-Sided Prism or Polyprism,** for illustrating the principle of the convex lens and the refraction of a prism..	.35	
	73-67	**Model of Galileo's Telescope and Opera Glass.** Two lenses, one positive, one negative, mounted on adjustable standards, with the path of the rays of light carefully drawn on the base. Price..................	4.50	



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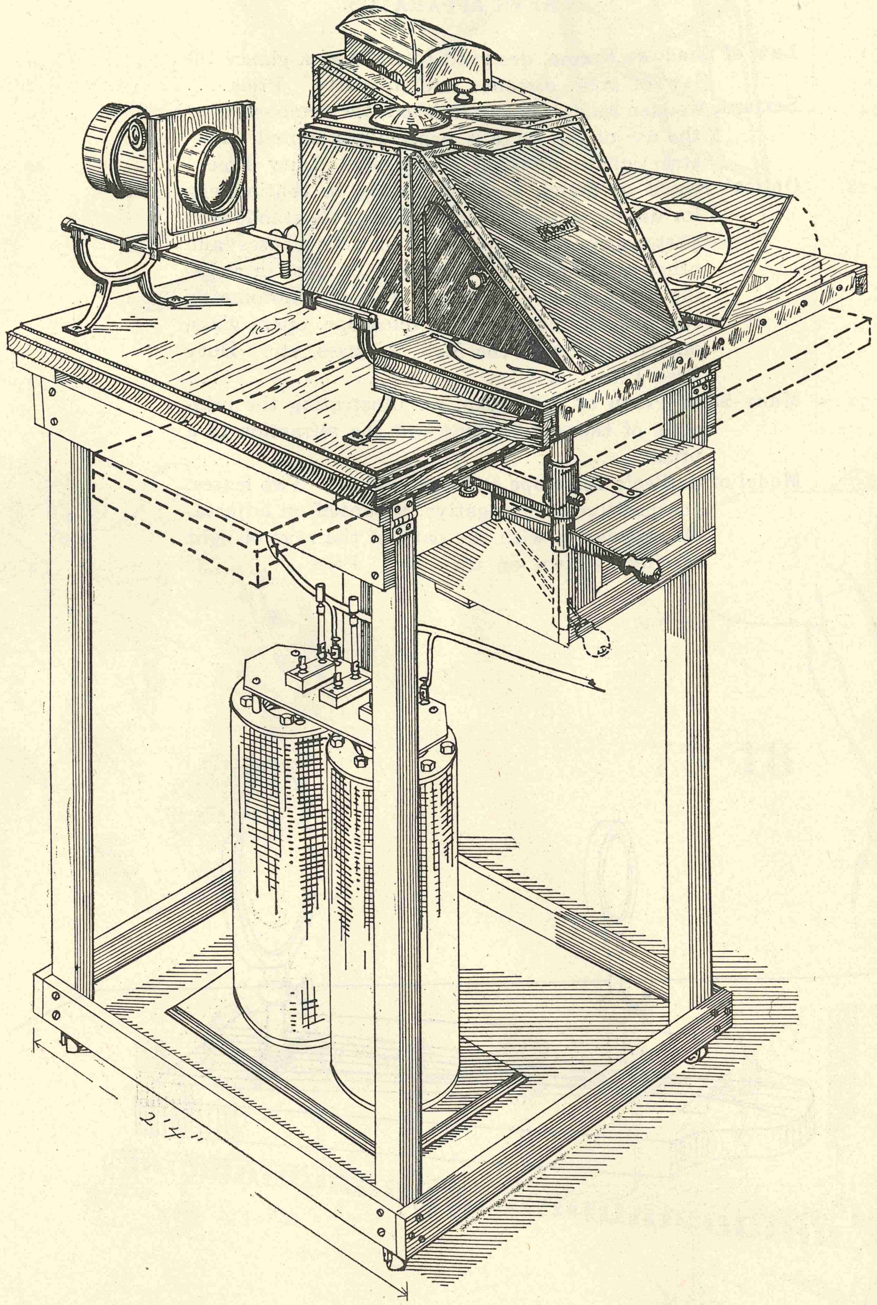
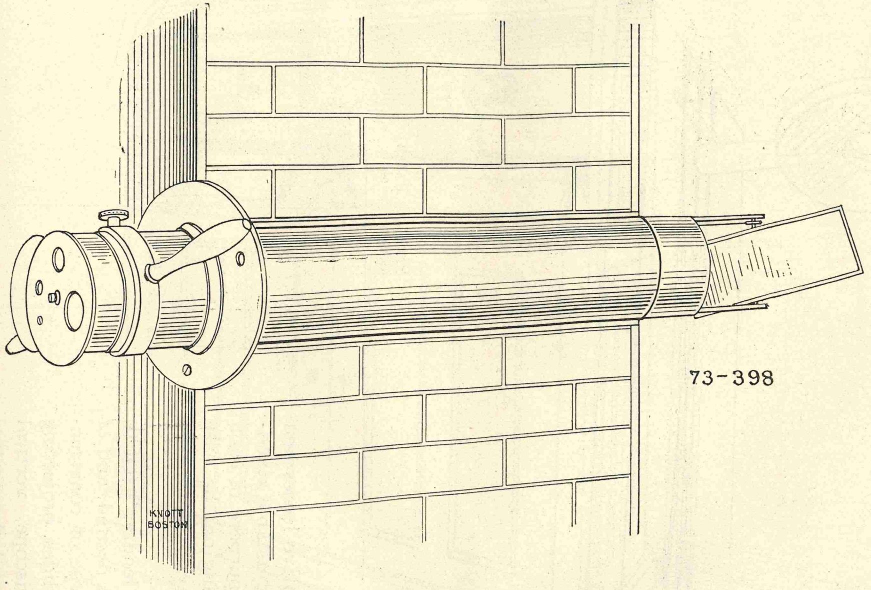


73-100

NEW APPARATUS.



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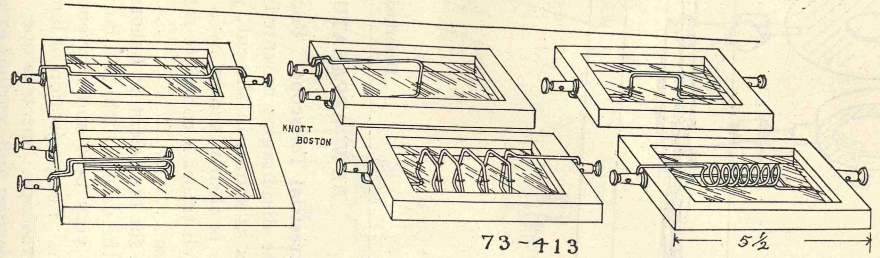
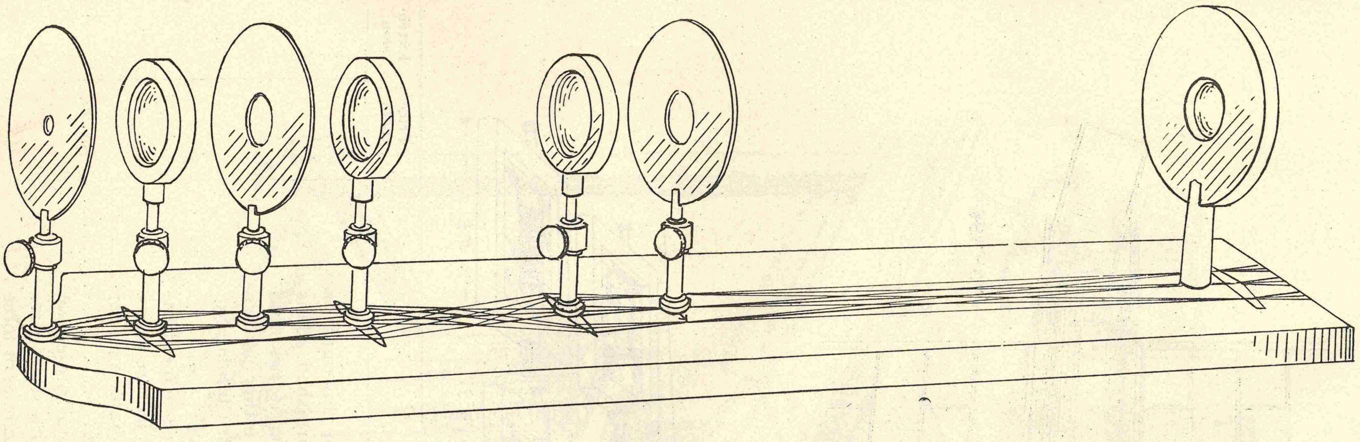


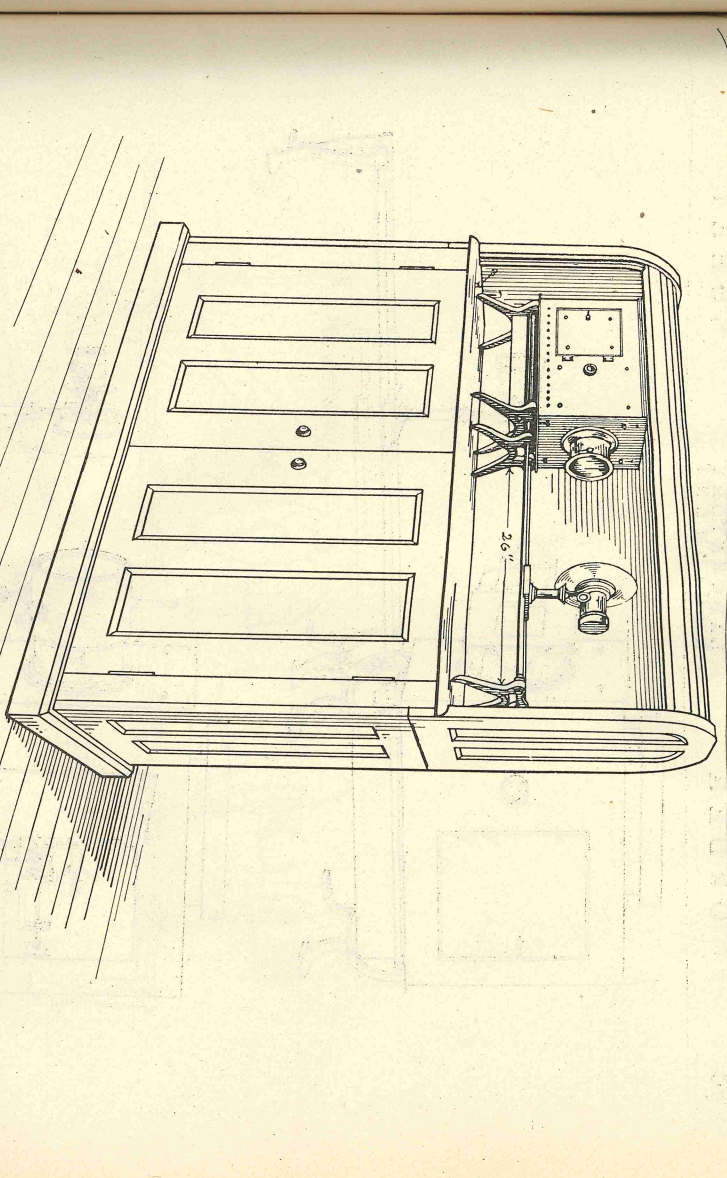
73-413

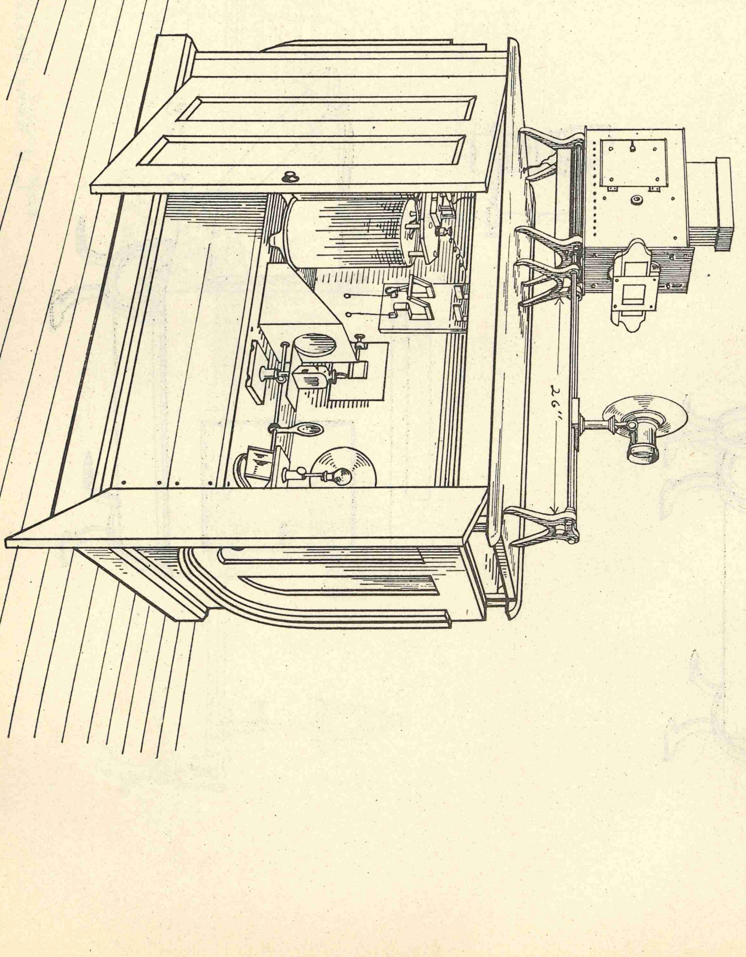
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	73-100	**The Opaque Projector.** The full price list of this outfit is published and will be cheerfully furnished. This outfit is indispensable to all laboratories and school rooms for the projection of either lantern slides or opaque subjects. Send for Circular No. 345.		
	73-398	**Porte Lumiere.** This Porte Lumiere is for permanent installation in the wall of the physics lecture room. It includes an adjustable slit and diaphragm for pencils of light. Price, Duty Free..................	55.00	
	73-413	**A Set of Lantern Slides,** for use on horizontal projection attachment to 73-158, to be used with 10 amperes current, with iron filings, to show the lines of force around conductors. Duty Free Price................	20.00	



73·68

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		NEW APPARATUS.		
	73-68	**Model of Terrestrial Telescope.** Four positive lenses and three diaphragms mounted on adjustable standards as shown in the cut. The purpose of each lens is clearly shown by a drawing on the base which traces a complete set of rays. Duty Free Price..	6.00	
	73-158	**New Lantern for the Scientific Laboratory,** lending itself to all the uses for which a lantern is desired, and of the very best and convenient type of construction. For projection of lantern slides, projecting microscope, spectroscope, polariscope, vertical projection and various experimental demonstrations. A complete description of this outfit will be cheerfully furnished on application. See succeeding pages.		





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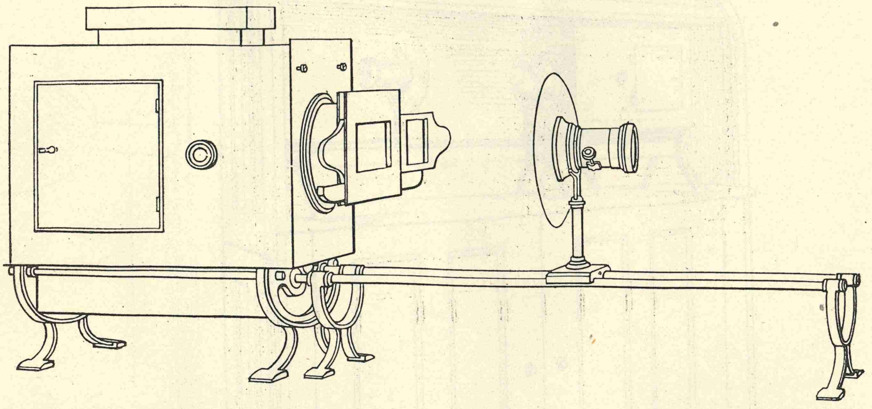

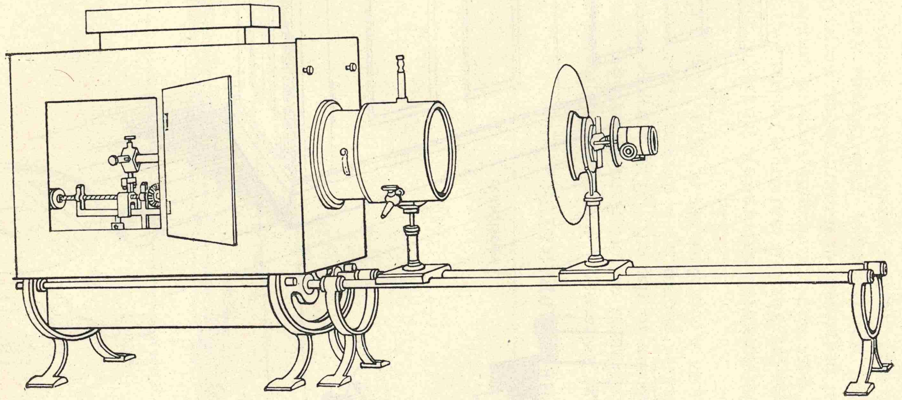

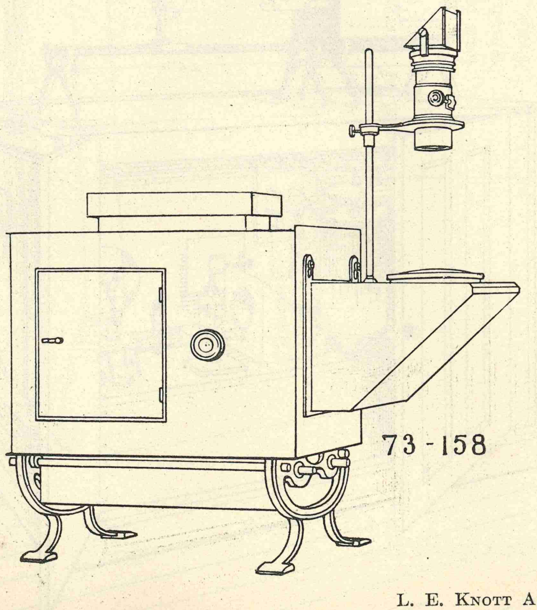

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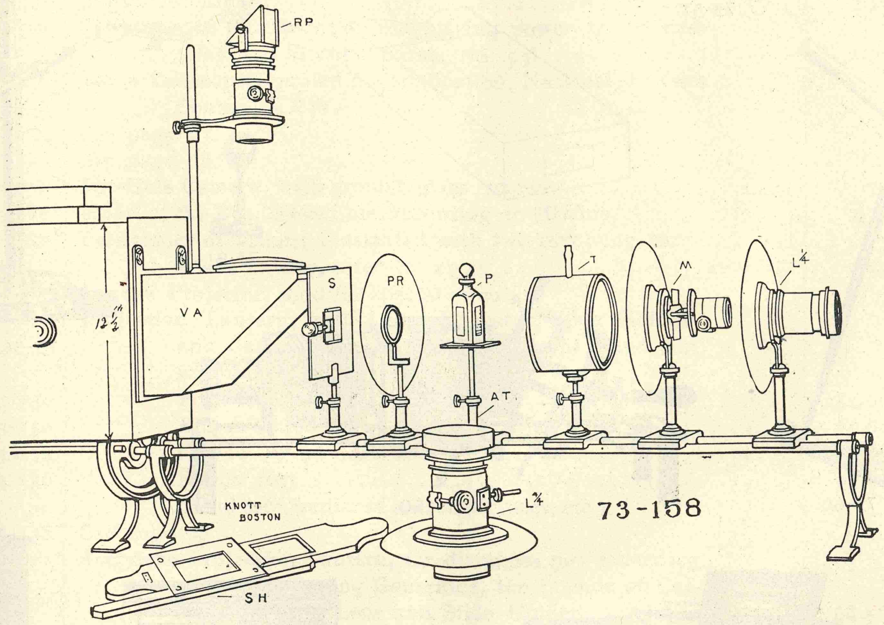
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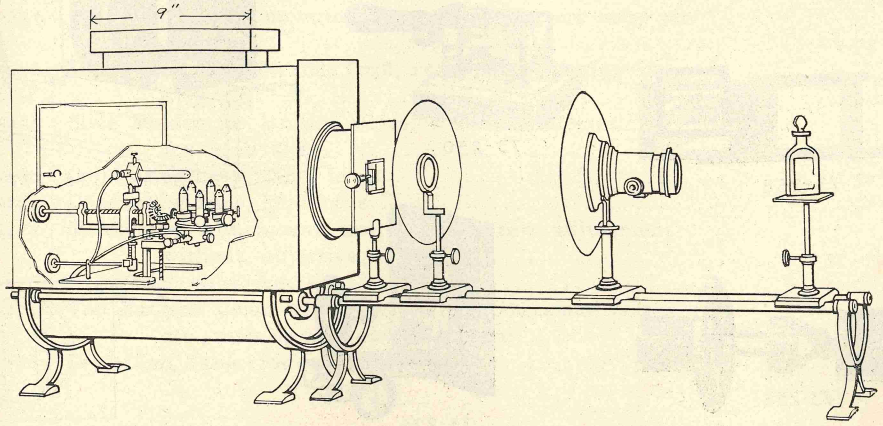

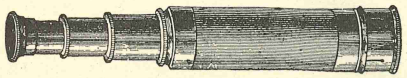

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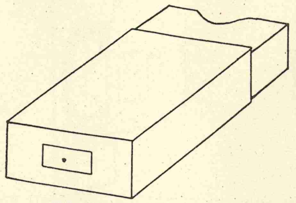

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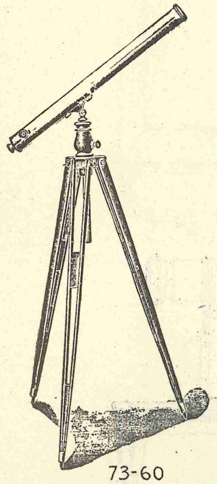

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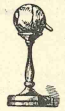

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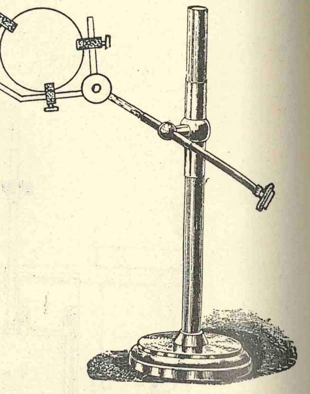

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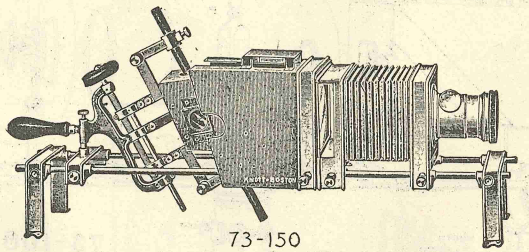

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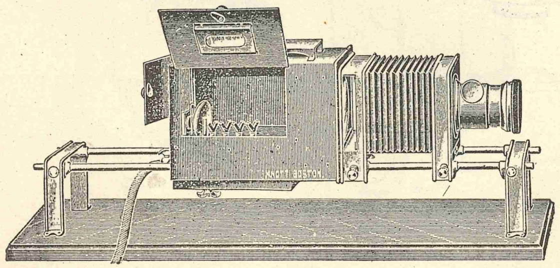

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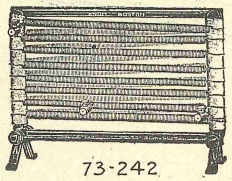

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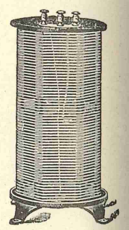

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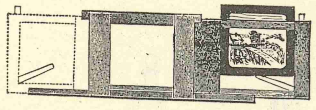

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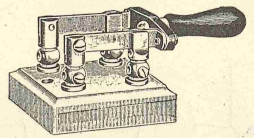

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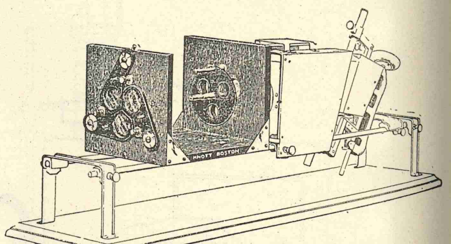

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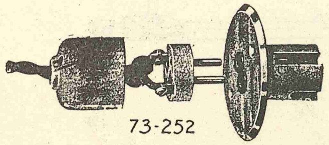

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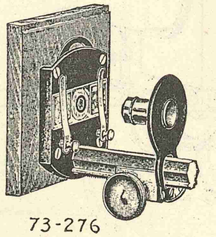

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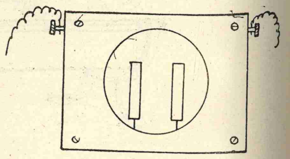
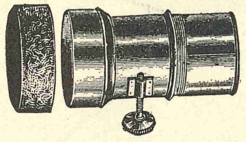


73-288

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	73-56a	**Lens Holder,** as designed at Univ. of Cincinnati	2.50	
	73-56b	Similar, mounted	7.50	
	73-57	**Telescope,** in four sections, magnifying power 15, in case (National Physics Course, No. 93)	2.50	
		Large Telescopes, quoted on application. National Physics Course XXIV.		
	73-67	See page 65.		
	73-68	See page 68.		
	73-71	**Pin-Hole Camera,** with ground glass screen	.75	
	73-81	**Model of the Eye,** dissectible, according to Ritchie	3.90	
	73-87	**Persistency of Vision;** illustrated with two revolving cardboard figures, refer to 21-41	1.25	
	73-100	**Opaque Projector,** send for special circular.		
		Projection Lantern, with Lens, Rheostat, Slide Holder and Carbons for the Electric Current (Send for Circular.)		
	73-150	For 6 to 20 feet	54.00	
	73-152	For 10 to 60 feet	65.00	
	73-154	For 60 to 90 feet	78.00	
	73-156	For 90 feet	91.00	
		(Send for Circular of size of pictures, etc.)		
	73-158	See page 68.		
	73-220	**Acetylene Projection Lantern,** for distances not exceeding 30 feet, including Generator, ten pounds of Calcium Carbide, Lens and Slide Holder	68.50	
	73-230	**Carbide,** especially prepared for lanterns, 10 pounds	1.50	
	73-240	**Arc,** hand feed, Columbia College design	15.00	
	73-242	**Rheostat,** German silver, mounted, 6 ohms, 10 amperes carrying capacity	6.00	
	73-243	**Rheostat,** mounted, adjustable, 6 ohms, 20 amperes carrying capacity	12.00	
	73-246	**Carbons,** soft core ½ inch, for use with electric lantern, per hundred, 8.00		
	73-248	**Carbons,** soft core, 3-8 inch per hundred, 8.00		
	73-250	**Double Knife Switch,** 15 amperes	.75	
	73-252	**Plug and Socket,** mounted in porcelain, for arc lamp circuits	2.75	
	73-256	**Double Insulated Flexible Cord,** 15 amperes carrying capacity per foot, .14		
	73-258	**Slide Holder** for lantern slides, 2 slides, automatic lift for each slide	1.00	
	73-260	**Condensing Lens,** short focus	1.50	
	73-262	**Condensing Lens,** long focus	1.50	
	73-274	**Microscope Attachment,** micrometer screw adjustment without objective	12.00	
	73-276	Same with objective	20.00	
	73-277	**Von Nardroff Color Mixer,** for the composition of colors, etc., may be used on any lantern	30.00	
	73-288	**Projection Tank,** for our lantern	5.00	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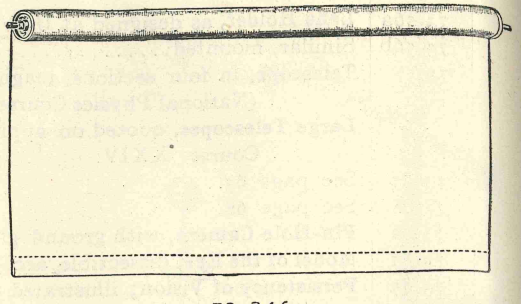
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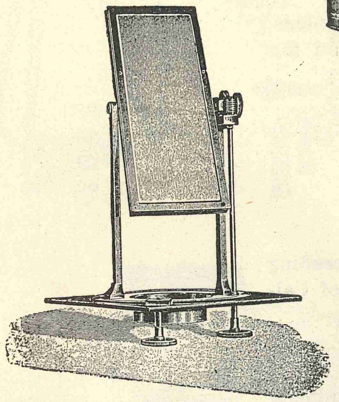
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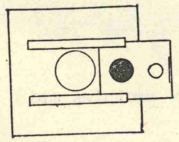
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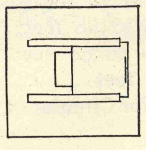
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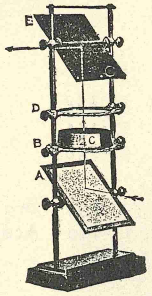

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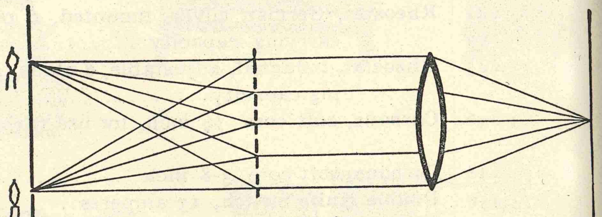
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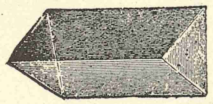
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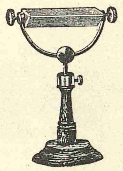
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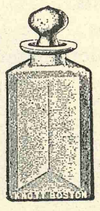
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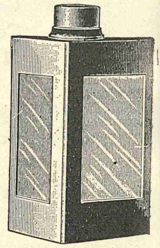
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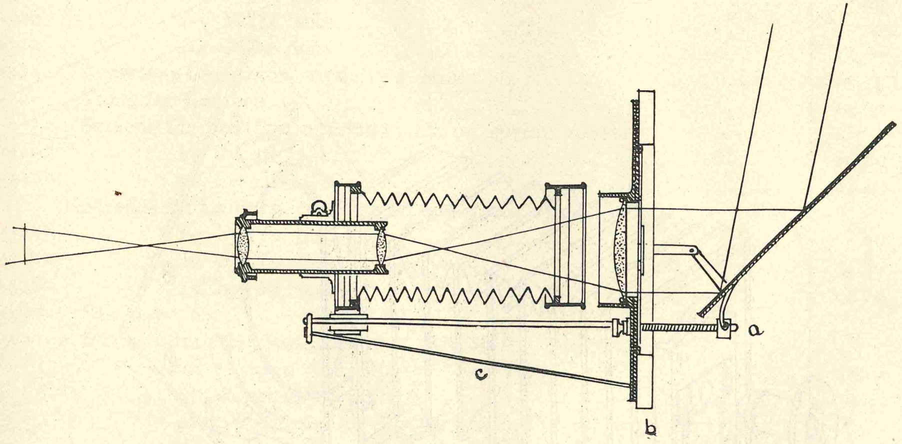

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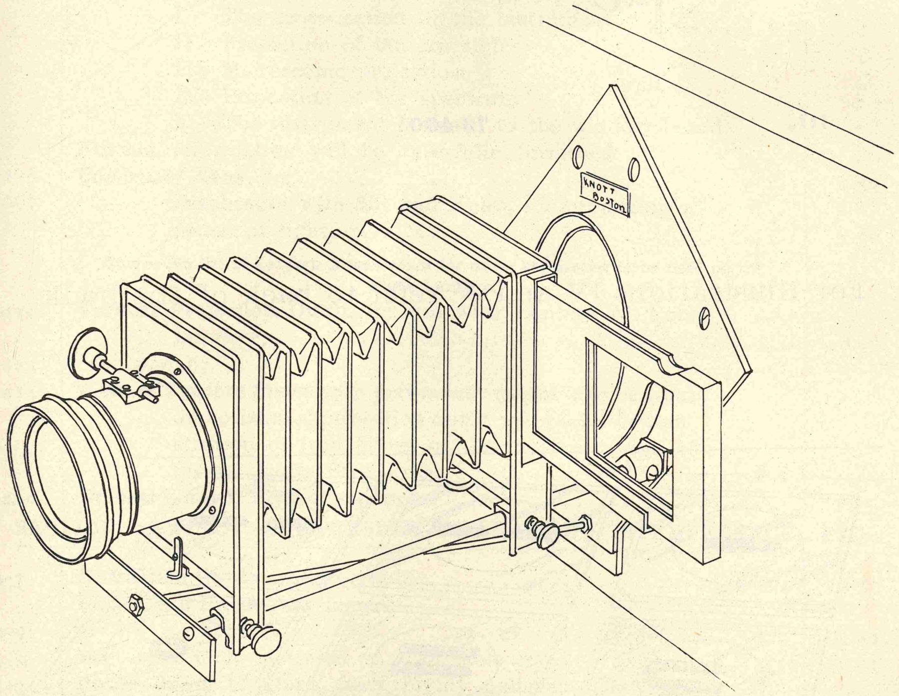

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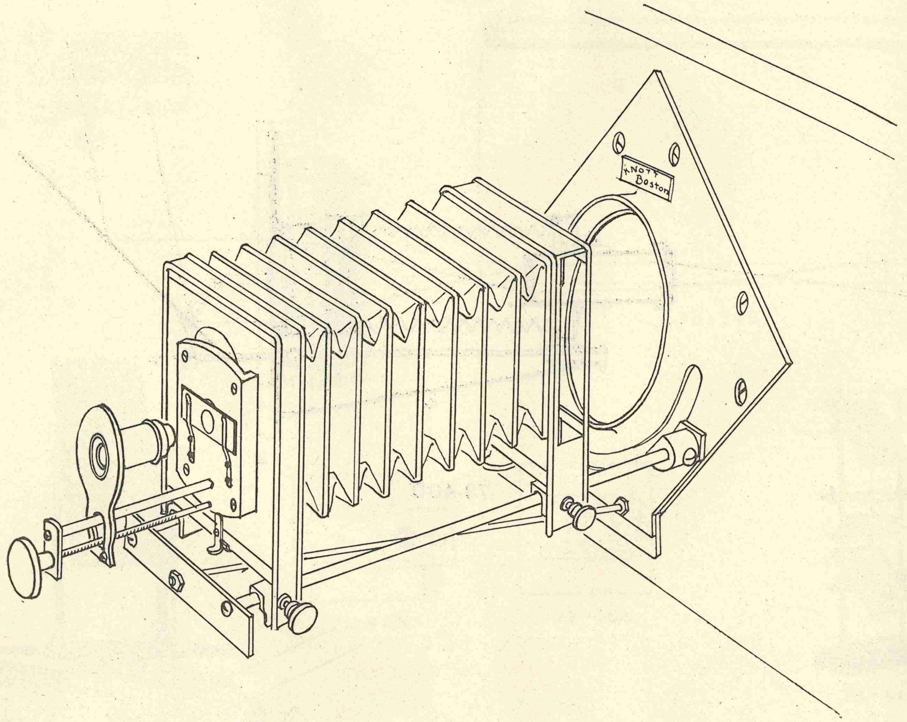
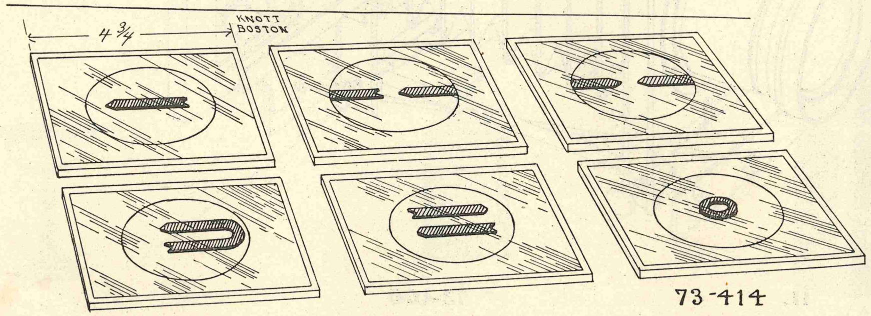


III. 73-400

For Illustrations IV and V refer to back of the book.

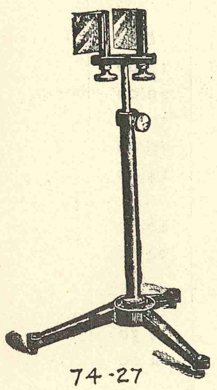


73-414

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		Objective Projection Lenses, for Lanterns:		
	73-300	1-4 Plate lens	6.50	
	73-302	1-2 Plate lens	12.00	
	73-304	2-3 Plate lens	20.00	
	73-306	4-4 Plate lens	32.00	
	73-332	**Acetylene Generator,** capacity 2 hours	20.00	
	73-340	**Table for Lantern**	14.00	
		Screens for Lantern, opaque cloth, on spring roller:		
	73-346a	10 by 10 feet	20.00	
	73-346b	12 by 12 feet	24.00	
		Screens for Lantern, re-enforced edges, with rings:		
	73-348a	10 by 10 feet	7.00	
	73-348b	12 by 12 feet	9.50	
	73-348c	15 by 15 feet	14.00	
	73-398	See page 67.		
	73-400	**Porte Lumiere, Sun Lantern, Ritchie:**		
		aa Frame and Mirror. See Fig. V	18.00	
		bb Optical Bench	5.50	
		cc Additions as illustrated in Fig. II with bb and 73-401	20.00	
		dd For Microscopic Projection. See Fig. III and 73-276.		
		ee Additions as illustrated in Fig. IV for spectrum projection, with bb and 73-401	17.50	
		Illustrations: I The cross-section of the instrument. II Projection of lantern slides. III Microscopic projection. IV Projection of the spectrum V The instrument fastened to the window board. Further information will be cheerfully furnished.		
	73-401	**Condenser Lens**	1.50	
	73-407	**Diaphragm with Slit and Holes,** for projecting a pencil of light	1.50	
		Note —See list of Lantern Attachments for other accessories to be used on the Porte Lumiere.		
	73-410	**Vertical Projection Outfit,** for use with Lantern or Porte Lumiere	8.00	
	73-413	See page 67.		
	73-414	**A Set of Lantern Slides** with permanent magnets to be used on horizontal projection outfit 73-158, for demonstration of iron filings of the magnetic lines of force. Duty Free Price	20.00	
	73-420	**Dolbear's Art of Projection,** book	1.15	

SECTION 74, LIGHT,—DISPERSION, DIFFRACTION, INTERFERENCE, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	74-3	**Diffraction Grating,** photographic	4.50	
		Flint Glass Prisms, 60 degrees:		
	74-5	4 inch	.40	
	74-7	6 inch, mounted on adjustable stand	5.00	
	74-9	**Bottle Prism of glass,** faces highly polished, (National Physics Course XXXII)	4.00	
	74-11	**Bottle Prism,** metal frame, glass faces	3.75	
		Right Angle Prism, refer to 72-21.		
	74-15	**Newton's Color Discs,** refer to 21-35	2.00	
	74-17	**Blue Glass Plates,** 2x4 inches, Cobalt, uniform color	.10	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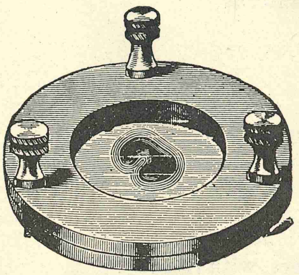
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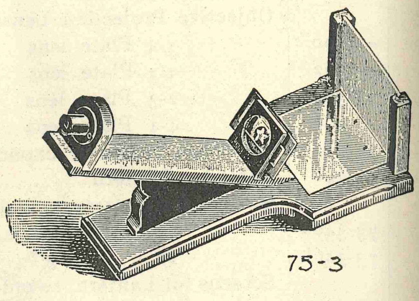
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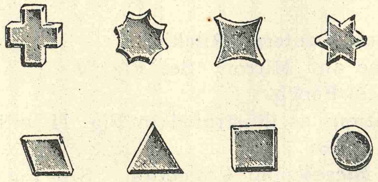
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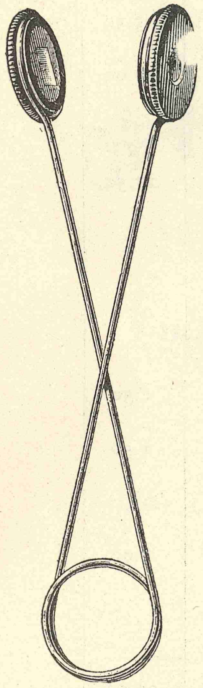
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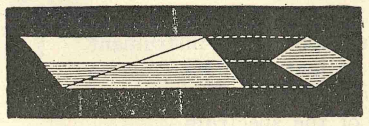
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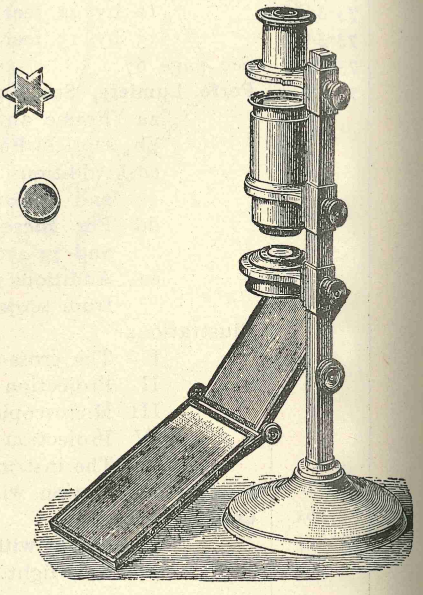
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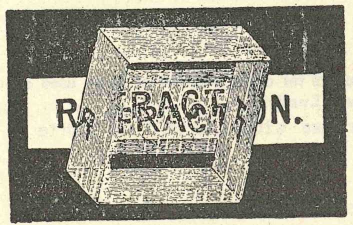

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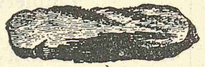
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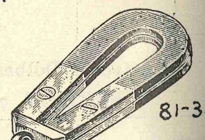
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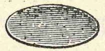
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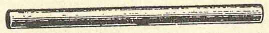
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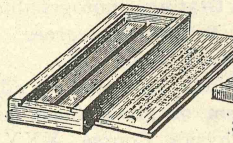
81-16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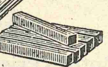
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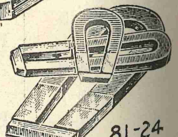

81-24

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	74-19	**Spectrum Chart,** finely colored	1.50	
	74-21	**Colored Glass Plates,** three colors, (National Physics Course XXIII) set, .35		
	74-23	**Aniline Colors** three in set, .30		
		Von Nardroff Color Mixer, reler to 73-277.		
	74-27	**Achromatic Prism** pair, 6.00		
	74-29	**Newton's Rings,** mounted in brass	1.50	

SECTION 75, LIGHT,—VELOCITY, POLARIZATION, ETC.

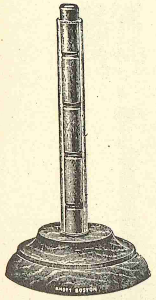
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	75-3	**Polariscope,** simple model, according to Pickering	7.00	
	75-11	**Glass,** not annealed, for polarized light experiments	3.00	
	75-13	**Mica Films,** for polarized light	1.00	
	75-17	**Tourmaline Tongs,** for polarized light	3.00	
	75-21	**Nicol's Prism,** small	3.00	
	75-23	**Nicol's Prism,** large	4.00	
		Iceland Spar Prism, showing double refraction:		
	75-27	Small size	.40	
	75-29	Large size	1.50	

SECTION 81, MAGNETISM—LAW OF MAGNETISM.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
		The following goods are well **illustrated** and described in a special catalog No. 130-8.		
	81-2	**Lode Stone,** distinct poles, small	.50	
	81-4	**Lode Stone,** distinct poles, large size	1.00	
	81-8	**Bar Magnet,** 2x¼x¼ inches, superior magnetic properties, for students' use doz., 1.50	.20	
	81-12	**Bar Magnet,** 6 inches doz., 2.50	.25	
	81-16	**Bar Magnet,** 12 inches	1.90	
	18-18	**Bar Magnet,** round, 6 inches	.50	
		Horse-shoe Magnets, superior quality, with armatures:		

Calatog No.	81-24	81-26	81-28	81-30	81-32	
Length	2	2	4	6	8	inches
Each	.10	.15	.25	.60	1.20	
Dozen	.90	1.25	2.00			

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	81-38	**Compound Horse-shoe Magnet**	2.50	
	81-46	**Magnetized Steel Disc,** two distinct poles	.50	
	81-48	**Breaking Magnet,** 6 inches long	.15	
	81-50	**Nickel Bar,** showing the magnetic properties of nickel	.20	
	81-52	**Set of Screens,** for magnetic transparency, six substances, set, .90		
	81-54	**Iron Filings,** clean, uniform lb., .15		
	81-56	**Soft Iron Bar,** Norway iron	.20	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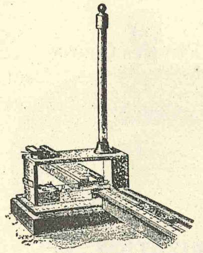
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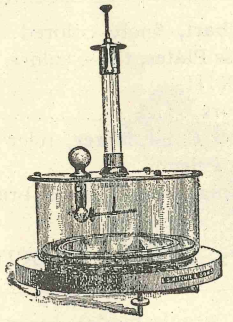
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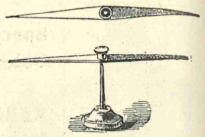
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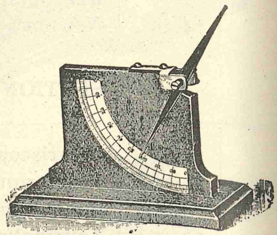
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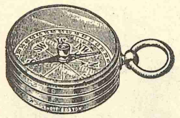
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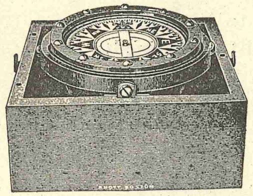
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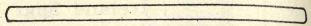
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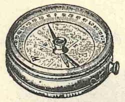
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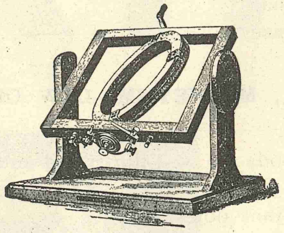
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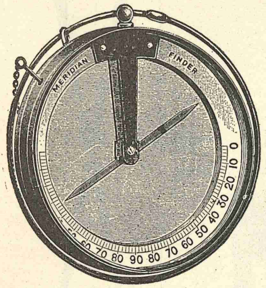
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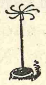
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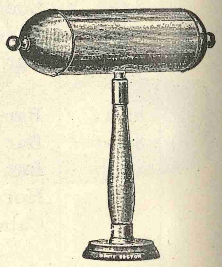
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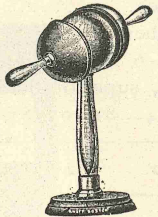
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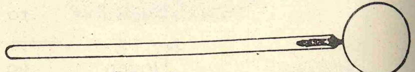
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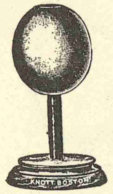
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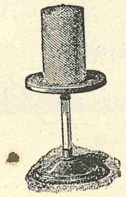
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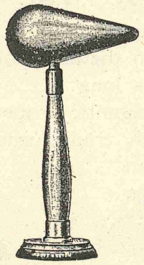
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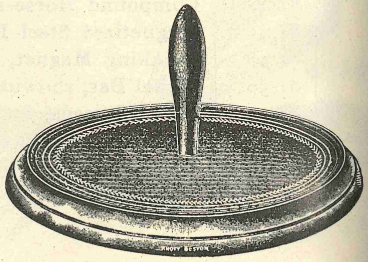
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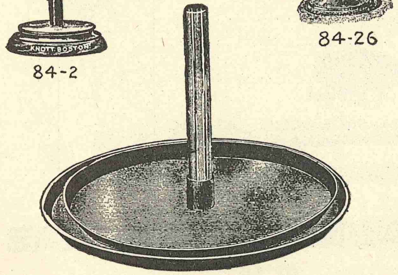

83-16

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	81-62	**Apparatus for Foucault Currents,** rotating copper disc for whirling table, magnetic needle insulated with mica, (refer to 21-39)	5.75	
	81-66	**Magnetometer,** according to Woodhull, a simple demonstration instrument	1.75	
	81-68	**Vibration Magnetometer,** simple, according to Stewart & Gee, for measurement by vibration, with graduated scale	9.50	
	81-70	**Magnetometer,** according to Coulomb	30.00	
	81-72	**Magnetoscope,** Flask form	1.25	

SECTION 82, MAGNETISM,—TERRESTRIAL.

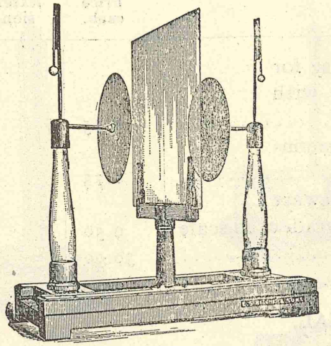
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	82-2	**Large Magnetic Needle,** mounted on a pivot and stand	.75	
	82-4	**Large Magnetic Needle,** agate bearing, mounted similar to preceding	1.25	
	82-12	**Short Needle Compass,** for tracing the lines of force, students' use, doz., 1.80		
	82-15	**Compass,** 2½ cm. diameter, graduated to 90 degrees	.25	
	82-16	**Compass,** 3½ cm. diameter, for use with small tangent galvanometer	.35	
	82-22	**Compass,** agate center, raised dial, graduation 0 to 90 degrees, for use with tangent galvanometer	1.50	
	82-28	**Marine Compass,** scientific construction, gimbal bearings. Many fundamental principles in physics illustrated	16.00	
	82-36	**Dipping Needle**	2.75	
	82-37	See page 95.		
	82-38	**Miner's Dipping Compass,** in case	12.00	
	82-40	**Earth Inductor,** large size	25.00	

SECTION 83, STATIC ELECTRICITY,—GENERATION.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	83-2	**Glass Rod,** for frictional electricity, Scotch glass	.30	
	83-4	**Hard Rubber Rod,** for frictional electricity	.40	
	83-6	**Resinous Rod,** moulded	.20	
	83-8	**Silk Exciting Pad**	.50	
	83-10	**Catskin,** medium size	.75	
	83-12	**Catskin,** extra large	1.00	
	83-14	**Pith Balls,** assorted doz., .25		
	83-16	**Electrophorus,** 10 inches	2.00	
	83-20	**Electrophorus,** large Ritchie Lecture Table type	12.00	

SECTION 84, ELECTRICITY,—STATIC DISTRIBUTION, INSULATORS, ETC.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	84-2	**Induction and Distribution Sphere,** 6 inches	8.50	
	84-4	**Induction and Distribution Sphere,** 4½ inches	4.00	
	84-8	**Induction Cylinder** on insulated stand, 8 inches	3 50	
	84-10	**Induction Cylinder,** similar, 16 inches	10.00	
	84-16	**Ellipsoidal Conductor**	7.50	
	84-18	**Electric Whirl**	1.25	
	84-22	**Biot's Dissectible Globe**	8.00	
	84-24	**Coulomb's Proof Plane**	.30	
	84-26	**Metal Electric Screen,** for electroscope	2.00	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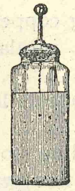
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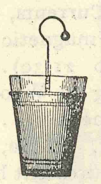
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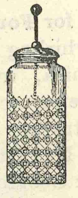
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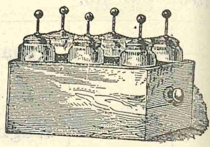
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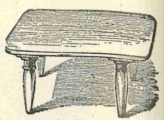
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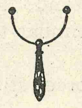
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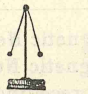
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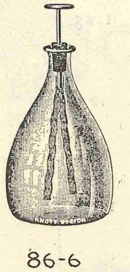
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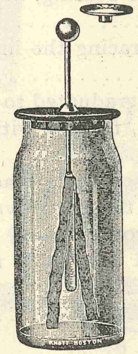
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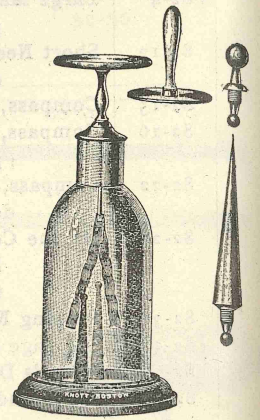
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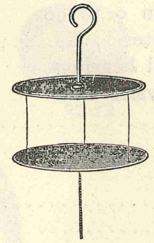
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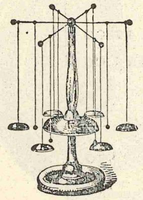
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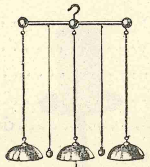
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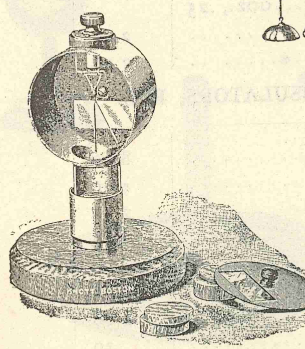
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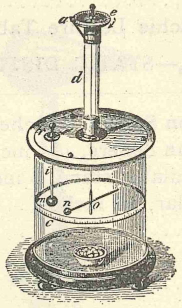
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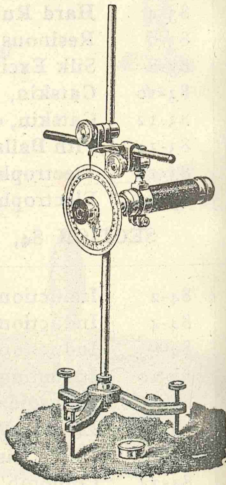
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SECTION 85, ELECTRICITY,—STATIC CONDENSATION.

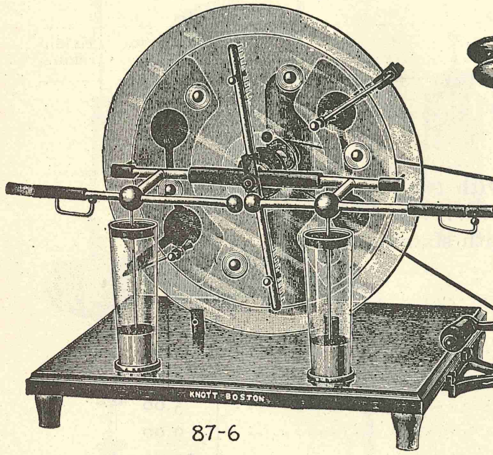
Qunatity wanted.	Cat. No.	Description.	Price each.	Extension.
	85-2	**Dissectible Condenser,** according to Epinus	15.00	
	85-8	**Leyden Jar,** one quart, Ritchie glass	1.50	
	85-12	**Leyden Jar,** two quarts, Ritchie glass	2.25	
	85-16	**Leyden Jar,** for Toepler-Holtz Machine with twelve-inch plate	.75	
	85-18	**Leyden Jar,** for Toepler-Holtz Machine with sixteen-inch plate	1.00	
	85-22	**Discharger,** for Leyden jar	1.50	
	85-28	**Dissectible Leyden Jar**	3.00	
	85-32	**Leyden Jar,** with diamond shape cuttings	3.00	
	85-38	**Insulated Stool**	4.00	
	85-40	**Leyden Jar Battery,** two one-quart jars	5.00	
	85-42	**Leyden Jar Battery,** four one-quart jars	9.00	
	85-44	**Leyden Jar Battery,** six one-quart jars	13.00	

SECTION 86, ELECTRICITY,—STATIC ELECTROMETERS.

	86-2	**Pith Ball Electrometer**	.50	
	86-6	**Electro-static Indicator**	1.00	
	86-8	**Gold Leaf Electroscope**	2.00	
	86-12	**Bennett's Gold Leaf Electroscope**	4.50	
	86-14	**Volta Condensing Plates,** for preceding	2.50	
	86-16	**Condenser Plate and Point,** for above	2.00	
	86-18a	**Wilson's Radio-Electroscope,** for measuring relative radio-activities	12.00	
	86-18b	**Reading Telescope,** especially constructed for above	12.00	
	86-18c	**Set of Radio-Active Elements**	2.00	
	86-20	**Coulomb's Torsion Balance**	17.50	
	86-28	**Electric Glass Piercing Apparatus**	2.75	
	86-30	**Plates for Pith Images**	1.50	
	86-32	**Pith Images** per pair, .75		
	86-36	**Chimes of Bells,** two bells	1.25	
	86-40	**Chimes of Bells,** three bells	1.50	
	86-44	**Chimes of Bells,** set of seven, mounted on a standard, brass and nickel finish	9.00	

LABORATORY APRONS,

SEND FOR DESCRIPTIVE MATTER.



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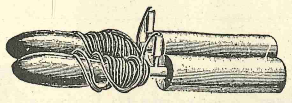

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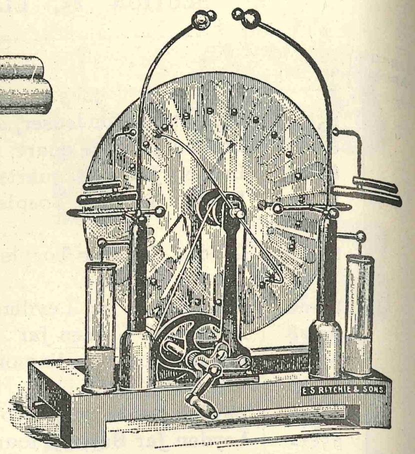

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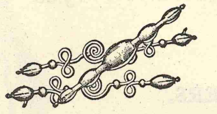

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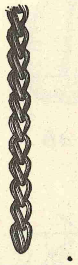

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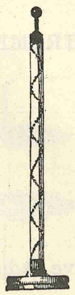

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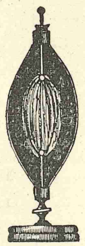

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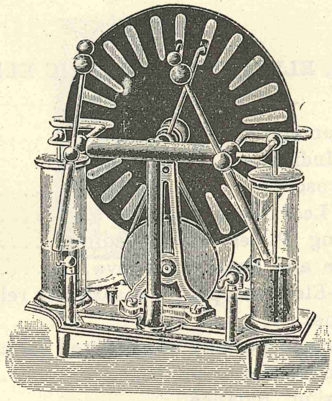

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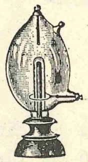

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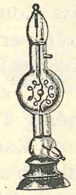

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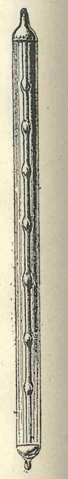

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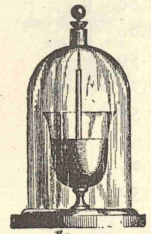

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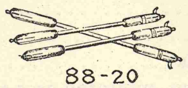

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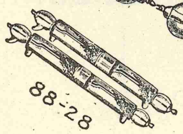

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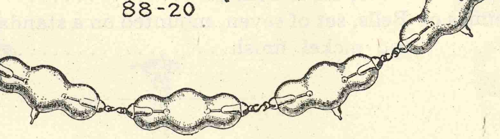

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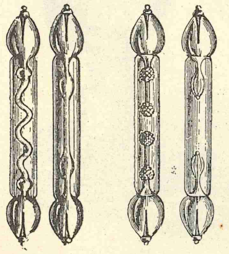

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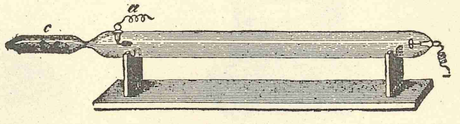

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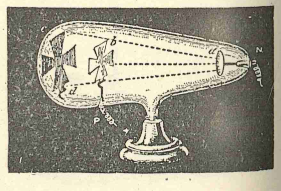

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SECTION 87, ELECTRICITY, STATIC,—FRICTIONAL AND STATIC MACHINES.

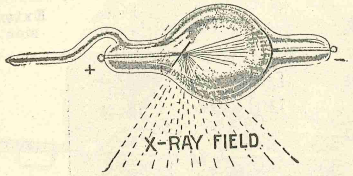
Quantity wanted	Cat. No.	Description.	Price each.	Extension.
	87-6	**Ritchie Toepler-Holtz Machine,** base 12 by 15 inches.....Duty free	19.50	
	87-8	Similar, base 22 by 15 ....Duty free Refer to 89-50 and 89-52.	38.50	
		Wimshurst Machine, made from selected materials:		
	87-10	8-inch plate	10.00	
	87-12	12-inch plate	32.00	
	87-14	14-inch plate	48.00	
	87-20	**Glass Plates,** for various electric machines, data given on sketch (send for circular.)		
	87-26	**Handles and Electrodes,** including flexible cord.......per pair, 1.50		
	87-28	**Amalgam** ....per bottle, .25		
	87-30	**Brass Chain** ....per yard, .08		
	87-34	**Spiral Tubes**	3.00	

SECTION 88, ELECTRICITY, STATIC,—VACUUM DISCHARGE.

Quantity wanted	Cat. No.	Description.	Price each.	Extension.
	88-2	**Geissler Tubes,** set of four, illustrating the various types of fluorescence, etc	2.40	
	88-8	**Geissler Tube,** large Lecture Table demonstration tube, 20 inches long	3.00	
	88-12	**Geissler Tube,** vertical demonstration tube, glass of various colors	3.00	
	88-16	**Geissler Globe,** with magnet, showing the rotary action of the field around a magnet	5.00	
	88-20	**Plucker's Spectrum Tubes,** with various gases as follows: CO_2, H_2O, H, N, and O	2.00	
	88-22	**Electric Globe,** with stopcock	7.50	
	88-24	**Aurora Tube,** refer to Guinea and Feather Tube 24-61	7.50	
	88-26	**Double Fluorescent Geissler Tube,** with fluorescence solutions	1.80	
	88-28	**Phosphorescent Geissler Tube,** with various crystalline salts	1.50	
	88-32	**Phosphorescent Mercury Tube,** self exciting	2.20	
	88-42	**Gassiot's Cascade,** for use with air pump and bell glass	1.50	
	88-46	**Graduated Vacuum Tube,** illustrating the stages of exhaustion	9.00	
	88-50	**Maltese Cross Tube,** same type as used by Roentgen	5.00	
	88-52	**Crooke's Adjustable Vacuum Tube,** illustrating the reduction of exhaustion by heat	8.50	

HARCOURT PORTRAITS OF SCIENTISTS,

Send for Descriptive Literature.



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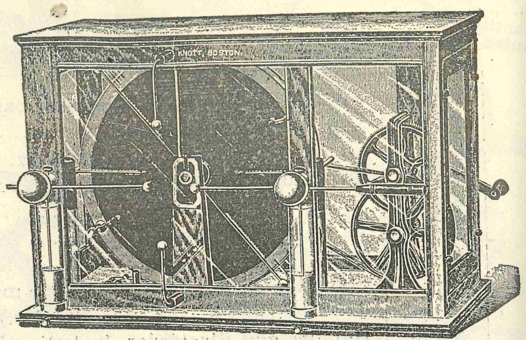

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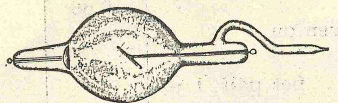

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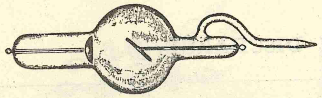

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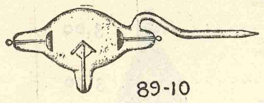

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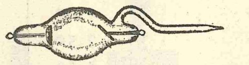

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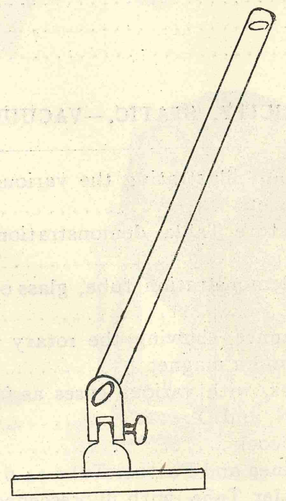

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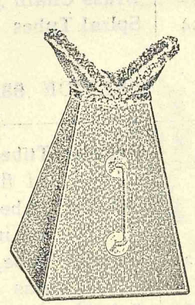

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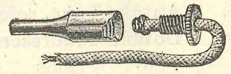

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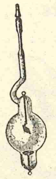

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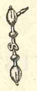

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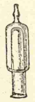

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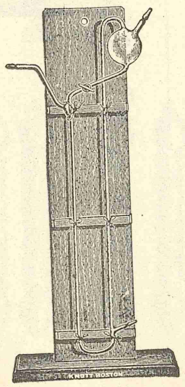

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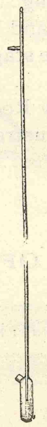

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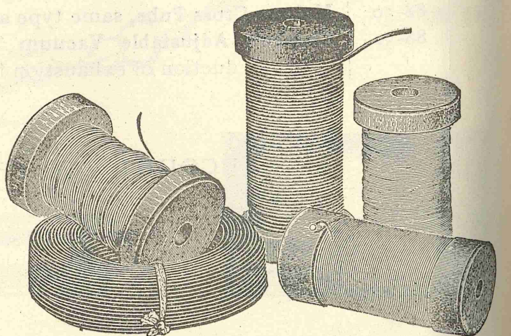

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91-6

SECTION 89, ELECTRICITY, STATIC,—X-RAY PRODUCTION.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	89-2a	**Single Focus Crooke's X-Ray Tube**, for static machine	6.00	
	89-2b	Similar, for large static machine	10.00	
	89-6a	Similar, for Induction Coil	6.00	
	89-6b	Similar, for large Induction Coil	10.00	
	89-10	**Focus Tube**, for High Frequency Tesla Coils	10.00	
	89-20	**Boltwood Pump**, for operation with five pounds of mercury, mounted on stand	7.50	
	89-24	Similar, without stand	6.00	
	89-30	**Dewar Bulb**, for use with Boltwood Pump	2.50	
	89-36	**Crooke's Tube**, (X-Ray), for use with Boltwood Pump	2.50	
	89-40	**Barometer Tube**, for use with Boltwood Pump	2.50	
	89-44	**Geissler Tube**, for use with Boltwood Pump	2.50	
	89-50	**L. E. Knott Apparatus Company's 4-plate Influence Machine**, with mahogany and glass case, high-speed gearing	75.00	
	89-52	Similar, 8-plate, (refer to 87-6)	125.00	
	89-60	**Fluoroscope**, constructed of the finest material, 3 by 4 inches	6.00	
	89-62	**Fluoroscope**, similar to preceding, 4 by 7 inches	12.00	
	89-64	**Fluoroscope**, similar to preceding, 7 by 9 inches	24.00	
	89-70	**Tube Holder**, especially for Crooke's tubes, very satisfactory (Send for Circular of X-Ray Material.)	2.00	
	89-72	**Set of X-Ray Apparatus**, including fluoroscope, Crooke's tube, stand and connecting chains. Well selected for high school laboratory. Tube may be operated with induction coil of 2-inch spark, or with the static machine giving a 2-inch spark. Send for Illustration. Duty Free Price	16.00	

SECTION 91, ELECTRICITY,—ELECTRO-DYNAMICS AND MECHANICS.

The following goods are well illustrated and described in a Special Catalog 130-9:

91-2 **Spring Brass Wire**, without insulation:

Catalog Number	91-2a	b	c
B. & S. Gauge, No.	24	27	30
Per Spool	.35	.40	.55

91-4 **Wire, Copper**, without insulation, on spools:

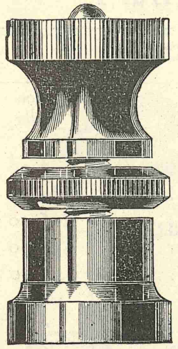
Catalog Number	91-4a	b	c	d	e	f	g	h	hh	i
B. & S. Gauge, No.	16	18	20	22	24	26	27	28	29	30
Feet per Spool	128	143	162	257	409	651	800	1035	800	820
Price per Spool	.625	.325	.35	.39	.40	.51	.53	.66	.71	.35

91-6 **Copper Wire,** double insulation, on spools:

Catalog Number	91-6a	b	c	d	e	f	g	h
B. & S. Gauge, No.	16	18	20	22	24	26	28	30
Price per Spool	70	.43	.43	.63	.63	.73	.48	.57

91-8 **Wire, Iron**, soft drawn, without insulation:

Catalog Number	91-8a	b	c
B. & S. Gauge, No	24	27	30
Price per Spool	.18	.29	.35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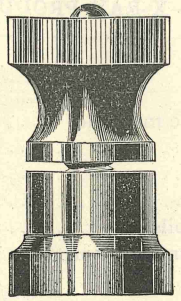
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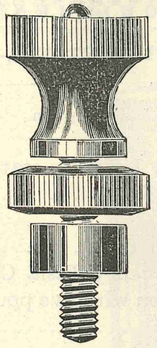
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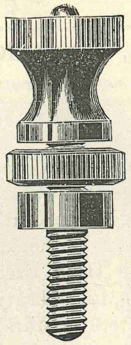
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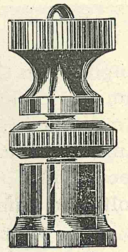
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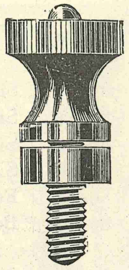
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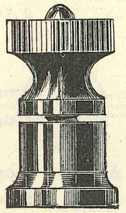
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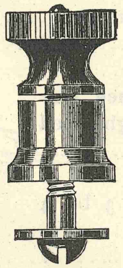
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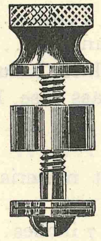
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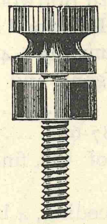
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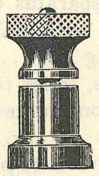
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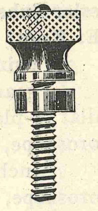
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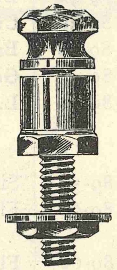
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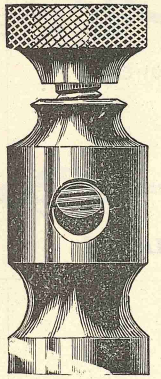
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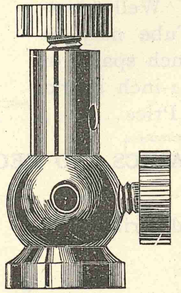
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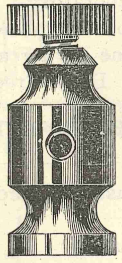
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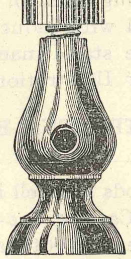
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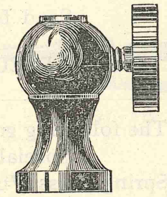
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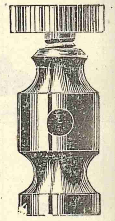
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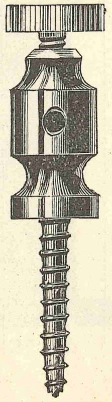
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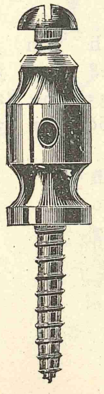
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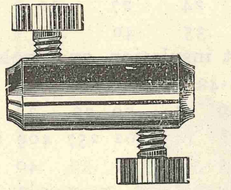
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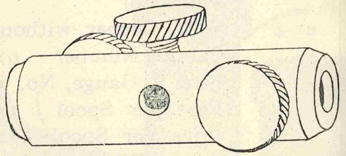
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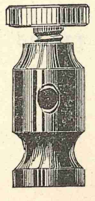
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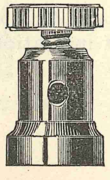
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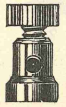
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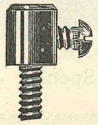
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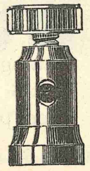
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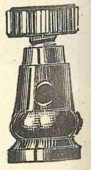

91-48

Quantity wanted.	Cat. No.	Description.	Price each.	Extension
	91-10	**Wire, German Silver,** without insulation, 18 per cent:		

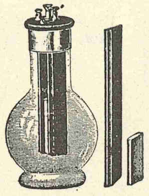
Catalog Number	91-10a	b	c
B. & S. Gauge, No.	26	28	30
Price per Spool	.65	.75	.95

Quantity wanted.	Cat. No.	Description.	Price each.	Extension
	91-16	**Flexible Cord,** for battery connections, ends prepared, carrying capacity 10 amperes . . . . . doz., 3.84		
	91-18	**Terminal Ends,** for flexible cord, screw clamping device	.10	
		Binding Posts, carefully made and furnishing a large collection:		

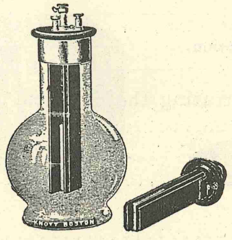
	Per 100		Per 100
91-20	38.00	91-35	13.00
91-22	30.00	91-36	16.00
91-23	30.00	91-37	13.00
91-24	20.00	91-38	13.00
91-25	20.00	91-39	15.00
91-26	10.00	91-40	13.00
91-27	13.00	91-41	10.00
91-28	18.00	91-42	13.00
91-29	13.00	91-43	13.00
91-30	9.00	91-44	13.00
91-31	18.00	91-45	13.00
91-32	28.00	91-46	13.00
91-33	28.00	91-47	13.00
91-34	30.00	91-48	15.00

Quantity wanted.	Cat. No.	Description.	Price each.	Extension
	91-56	**Binding Posts,** double connectors . . . . . per 100, 12.00		
	91-58	**Binding Posts,** triple connectors . . . . . per 100, 24.00		
		Battery Jars, hard glass, well annealed:		
	91-59	Diameter 2½, by 3 inches high	.12	
	91-60	Diameter 4, by 5 inches high	.25	
	91-62	Diameter 6, by 8 inches high	.40	
	91-64	Diameter 8, by 12 inches high	1.50	
		Rectangular Battery Jars, fine grade:		
	91-72	Base 1¾ by 3¾, by 6¾ inches high	.50	
	91-74	Base 3 by 4, by 6 inches high	.60	
	91-76	Base 8 by 10, by 10 inches high	2.00	

SPECIAL ATTENTION GIVEN TO REPAIRS.



92-56
92-60
92-62



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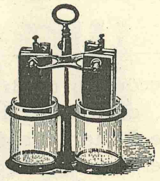

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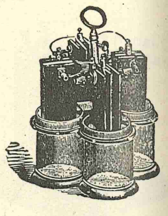

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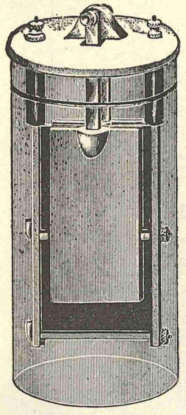

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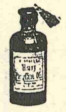

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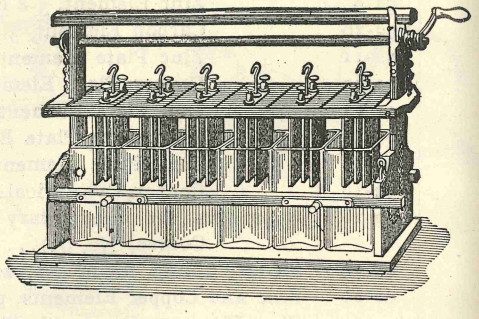

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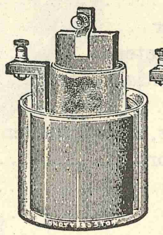

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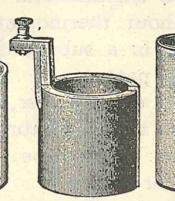

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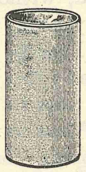

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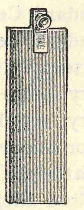

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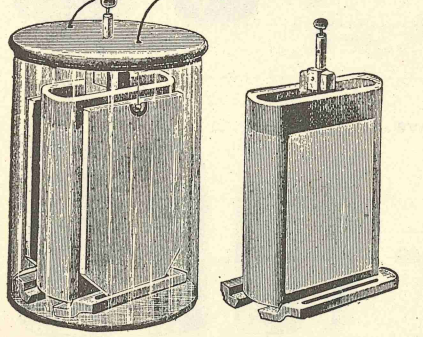

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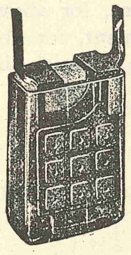

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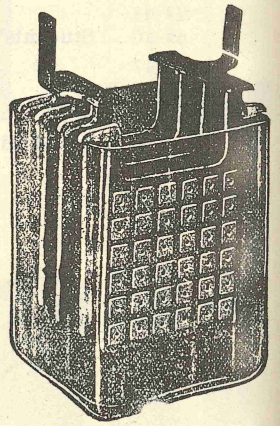
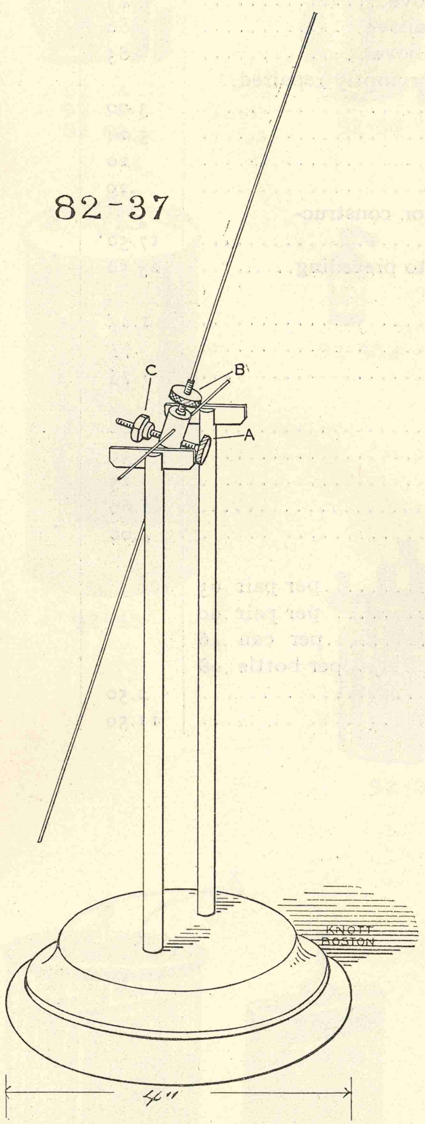


92-104

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	92-55	**Grenet Cell,** French manufacture, one pint	3.00	
	92-56	**Same,** one quart	3.50	
	92-58	**Same,** two quarts	4.50	
	92-60	**Zinc Element,** for one quart size, above	.35	
	92-61	**Zinc Element,** for two quart size, above	.45	
	92-62	**Carbon Element,** for one quart size, above	.60	
	92-63	**Carbon Element,** for two quart size, above	.85	
		Broken Elements sent to us will be promptly repaired.		
	92-68	**Students' Plunge Battery,** two cells	3.00	
	92-70	**Students' Plunge Battery,** four cells	5.00	
	92-71	**Zinc Elements,** for above	.20	
	92-72	**Carbon Elements,** for above	.20	
	92-76	**High School Plunge Battery,** four cells, superior construction	17.50	
	92-78	**High School Plunge Battery,** six cells, similar to preceding	23.50	
		Elements, for above:		
	92-79a	**Zinc**	1.25	
	92-79b	**Carbon**	.75	
	92-90	**Bunsen Cell,** one quart	1.75	
		Elements, etc., for above:		
	92-91	**Zinc Element**	1.00	
	92-92	**Carbon Element**	.30	
	92-93	**Porous Cup,** special size	.15	
	92-94	**Glass Jar,** refer to 91-60	.60	
	92-98	**Edison Lelande Battery,** type S	4.00	
		Elements, etc., for above:		
	92-98a	**Zinc Element** per pair .63		
	92-98b	**Copper Element** per pair .90		
	92-98c	**Potash** per can .46		
	92-98d	**Oil** per bottle .08		
	92-100	**Students' Storage Battery**	2.50	
	92-104	**Laboratory Storage Battery**	11.50	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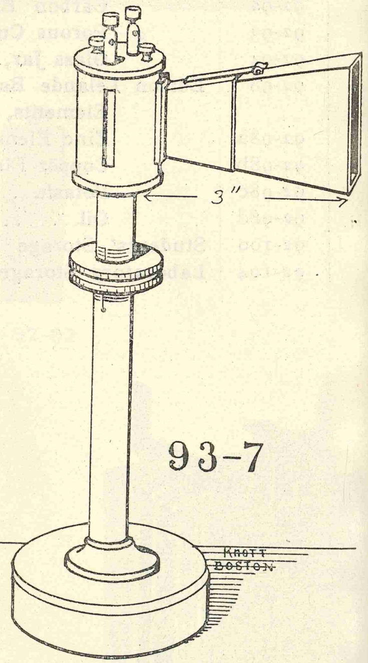
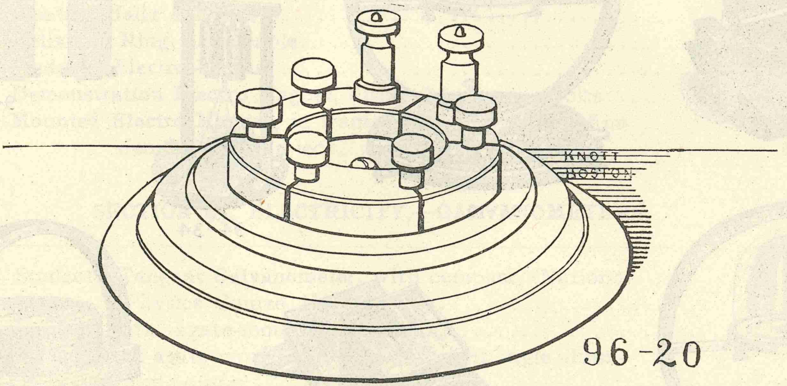

93-7

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	82-37	**Laboratory Dipping Needle** for use of the student in the laboratory. Devised by W. R. Pyle, Morris High School, N. Y. This outfit with a set of 6 needles is furnished without magnetism. The needle is balanced by the student and then magnetized. The dip is carefully taken and noted. Therefore, the magnetic dip is well emphasized. May be used either for laboratory work by the student or a lecture table demonstration. Price........	2.00	
	93-7	**Thermopile,** made from constantine and iron. The increase of one degree Centigrade gives 1000 microvolts current. Duty Free Price......................	33.00	
	96-20	**Resistance Boxes.** This little resistance box is quite accurately made and is indispensable to those High Schools who desire to use the Wheatstone bridge for fractional results and can use the resistance box for all measurements from one to 20 ohms. This box has been tested and favorably recommended by Mr. N. Henry Black of the Roxbury Latin School. Price..................................	4.25	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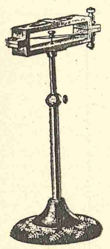
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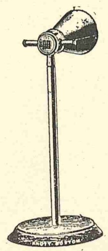
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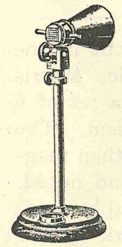
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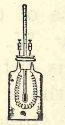
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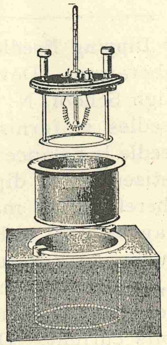
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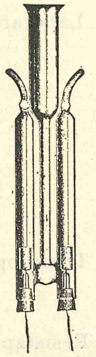
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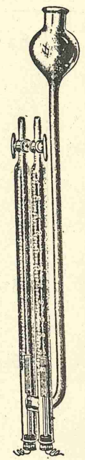
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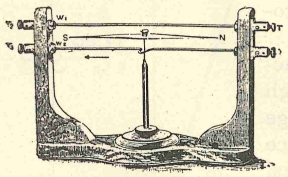

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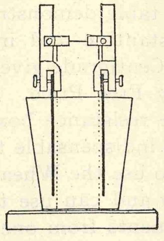
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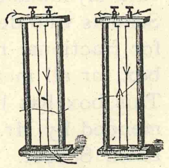
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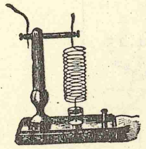
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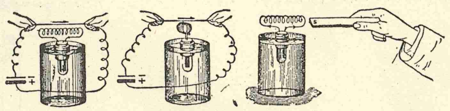
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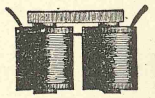
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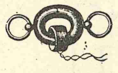
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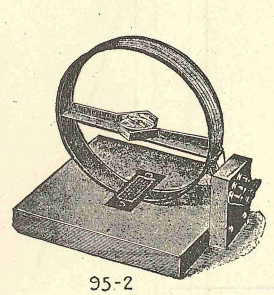
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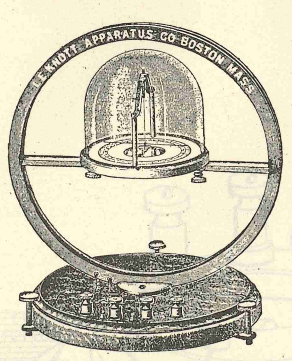
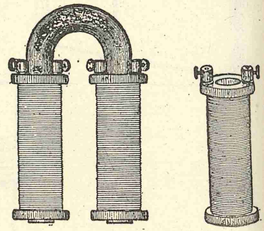

L.E. KNOTT APPARATUS CO BOSTON MASS.
95-10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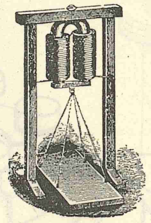
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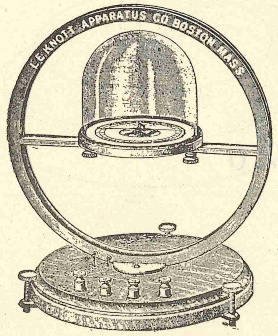
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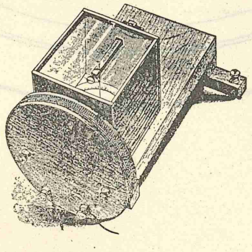
95-12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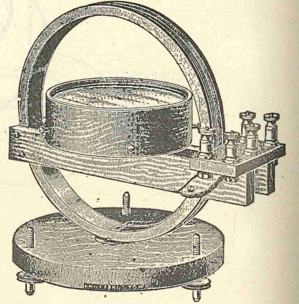

95-14

SECTION 93, ELECTRICITY,—THERMO-CURRENTS AND ELECTROLYSIS.

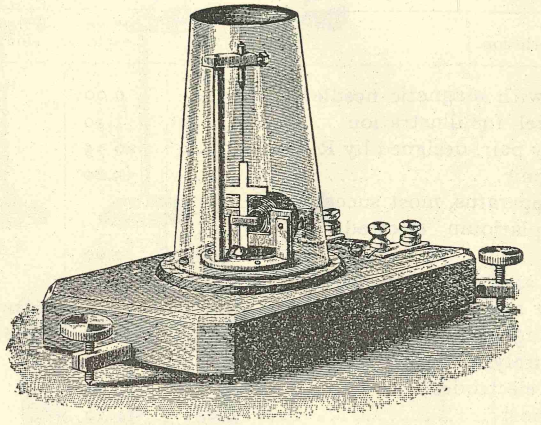
Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	93-2	**Thermo-Electric Pair,** mounted, with magnetic needle..........	6.00	
	93-4	**Thermo-Electric Pair,** simple model, for illustration........	1.50	
	93-6	**Thermo-Electric Multiplier,** twenty pair, designed by Ritchie	20.75	
	93-8	Similar to preceding, forty-nine pair........................	35.00	
	93-12	**Knott's Elementary Electrolysis Apparatus,** most successful type introduced with platinum electrode, detachable	2.60	
	93-14	Similar, including both platinum and carbon electrodes..........	3.20	
	93-16	Similar, including both platinum and carbon electrodes, and support with binding post....................	5.20	
	93-18	**Hoffman's Large Graduated Electrolysis Outfit,** with two stopcocks and platinum electrodes	7.00	
	93-20	Similar, with stand and binding post....................	11.50	
	93-24	**Carbon Electrodes for above** ....pair,	1.00	
	93-26	**Electroplating Outfit**	5.50	
	93-34	**Copper-Voltameter,** Sabine type....................	1.50	
	93-37	**Students' Simple Electric Calorimeter**....................	2.50	
	93-38	**Electric Calorimeter,** with non-conducting case, stirring arrangement, advanced type....................	15.00	
	93-39	**Special Thermometer,** for above....................	2.00	
	93-40	**Test Wire,** for 93-38....	.25	

SECTION 94, ELECTRICITY,—ELECTRO-MAGNETISM.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	94-2	**Oersted's Law Apparatus,** showing the effect of induction of currents on magnetic needle, including needle..........	3.50	
	94-4	**Parallel Conductor Apparatus**....................	1.30	
	94-8	**Contracting Helix**	2.75	
	94-12	**Floating Helix and Cell**....................	1.50	
	94-16	**Helix and Ring,** detachable....................	3.00	
	94-20	**Students' Electro-Magnet**	.50	
	94-28	**Demonstration Electro-Magnet,** dissectible, for ten volts.........	2.50	
	94-34	**Mounted Electro-Magnet,** in frame, very powerful, a fine demonstration piece....................	6.00	

SECTION 95, ELECTRICITY,—GALVANOMETERS.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	95-2	**Students' Tangent Galvanometer,** with compass, (National Physics Course, No. 100)	2.50	
	95-4	Similar, with agate-mounted needle....................	3.00	
	95-6	Similar, with agate-mounted needle and right angle aluminum pointer	4.00	
	95-10	**Tangent Galvanometer,** fibre suspended needle, 9-inch ring........	9.00	
	95-12	**Tangent Galvanometer,** agate-mounted needle, 9-inch ring........	9.00	
	95-14	**Tangent Galvanometer,** Ritchie and Sabine design..............	15.00	
	95-16	**Thompson's Graded Galvanometer,** designed by F. M. Gilley	5.50	
	95-19	**Tangent Scale,** refer to 14-3....................	25	



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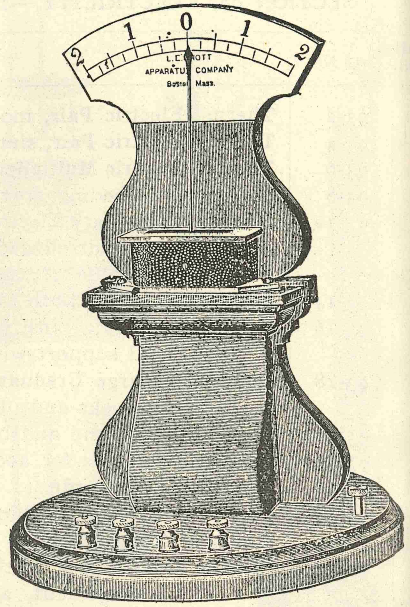
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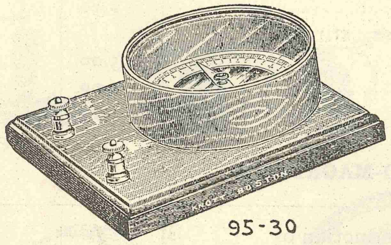
L. E. KNOTT
APPARATUS COMPANY
Boston Mass.

95-34



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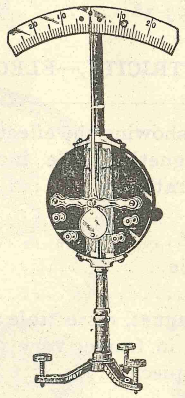

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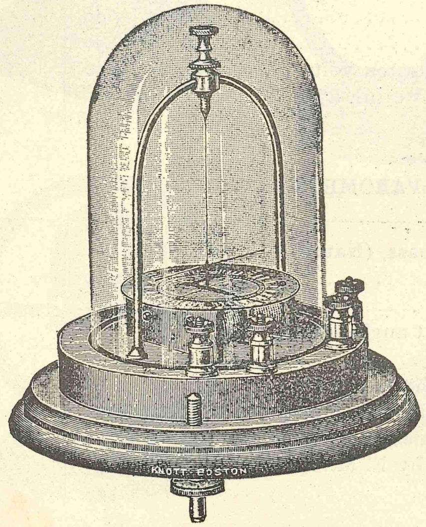
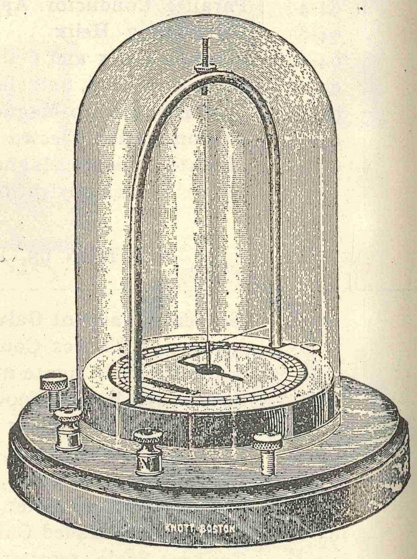
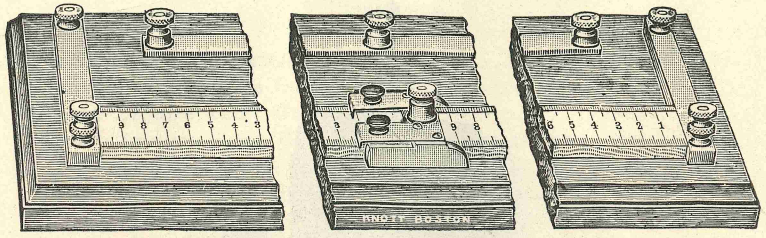

KNOTT BOSTON

95-48


KNOTT BOSTON

95-46


KNOTT BOSTON

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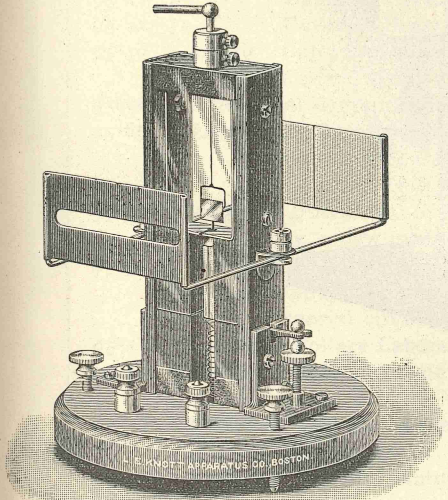
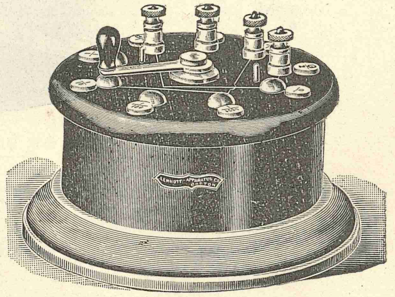

L. E. KNOTT APPARATUS CO., BOSTON

95-91



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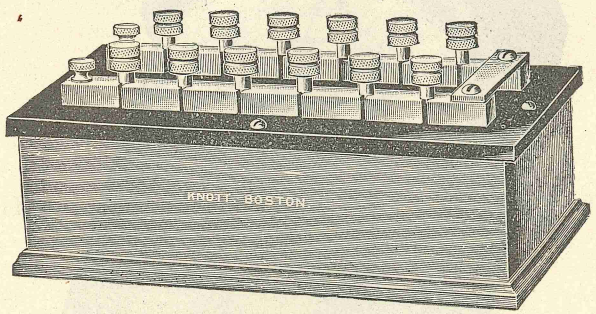
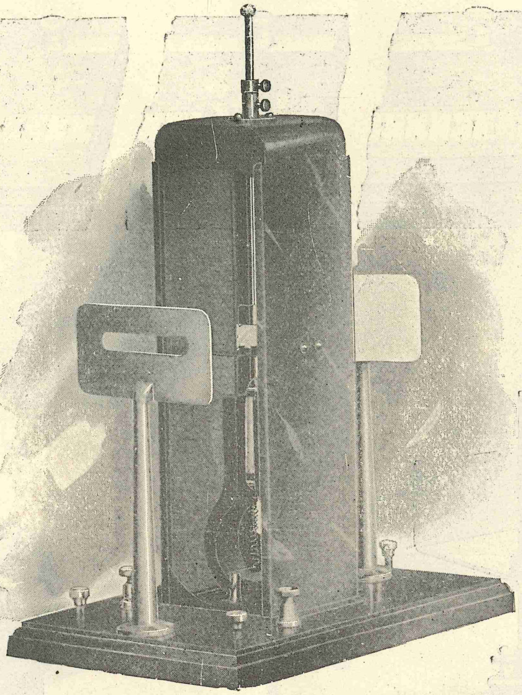

KNOTT. BOSTON.

96-24

Electrical Testing Set.



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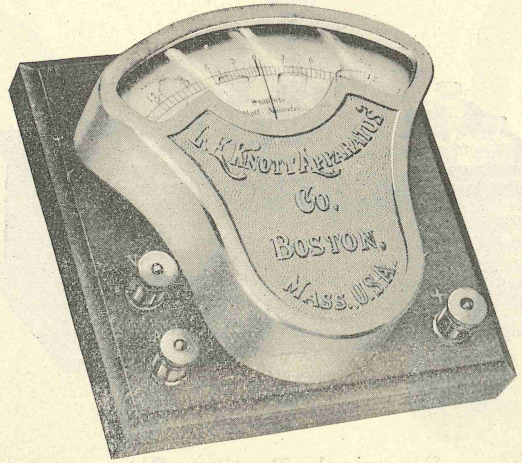
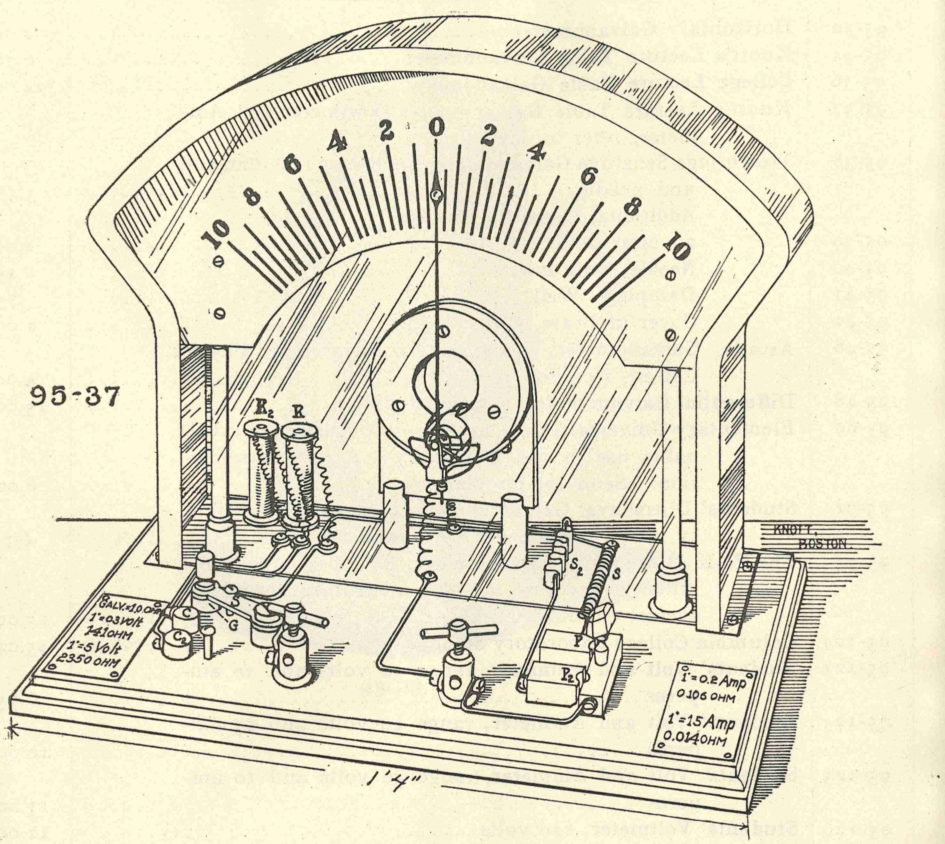


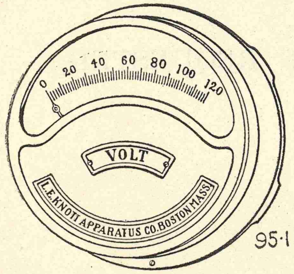
95-123

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	95-30	**Horizontal Galvanometer**	2.00	
	95-34	**Knott's Lecture Table Galvanometer**	6.50	
	95-36	**College Lecture Table Galvanometer**	24.00	
	95-37	Knott's Lecture Table Galvanometer, Voltmeter and Ammeter, refer to page 103.		
	95-38	**Trowbridge Sensitive Galvanometer**, including one ohm coil and needle	3.50	
		Additional Parts, for above:		
	95-39	**20 ohm Coil**	1.00	
	95-40	**Needle with mirror**	1.25	
	95-41	**Damping Well**	.75	
	95-42	**Cover of Brass**, with window	2.00	
	95-46	**Astatic Galvanometer**, according to National Physics Course, No. 107	4.00	
	95-48	**Differential Galvanometer**, astatic winding	15.00	
	95-69	**Elementary Universal Shunt**, according to Ayrton, of invaluable use in the laboratory. A new introduction. Send for circular	6.00	
	95-91	**Students' D'Arsonval Galvanometer**, 20 megohms sensibility, a new instrument, very valuable	6.75	
	95-93	**The W-K D'Arsonval Galvanometer**, 150 megohms sensibility, a new and valuable instrument (send for special circular)	15.00	
	95-104	**Columbia College Laboratory Stand**, special	15.00	
	95-121	**Students' Volt and Ammeter**, range 10 volts and 10 amperes	6.75	
	95-123	**Students' Volt and Ammeter**, range 20 volts and 15 amperes	10.00	
	95-125	**Students' Volt and Ammeter**, range 50 volts and 10 amperes	11.00	
	95-126	**Students' Voltmeter**, 120 volts	12.00	
	95-131	**Pocket Ammeter**, range 20 amperes, watch case type	6.00	

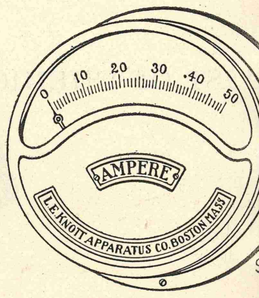
LIST OF CHEMICAL APPARATUS SENT WHEN REQUESTED.


10
8
6
4
2
0
2
4
6
8
10
R2
R
S2
S
G
C
C2
P
P2
KNOTT,
BOSTON.
GALV.=1.0 OHM
1'=0.3 Volt
14.1 OHM
1'=5 Volt
2350 OHM
1'=0.2 Amp
0.106 OHM
1'=15 Amp
0.014 OHM
1'4"

95-37


0
20
40
60
80
100
120
VOLT
L.E. KNOTT APPARATUS CO. BOSTON, MASS.

95-133

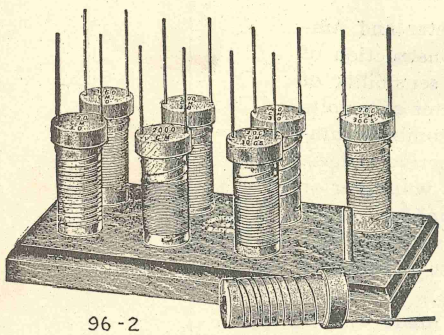

0
10
20
30
40
50
AMPERE
L.E. KNOTT APPARATUS CO. BOSTON, MASS.

95-137

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	95-37	**Knott's Lecture Table Galvanometer, Voltmeter and Ammeter.** A demonstration of the construction of the D'Arsonval galvanometer with sensibility of 25 milli-volts. A combined voltmeter of 3 volts and 50 volts respective ranges. A combined ammeter of 2 and 15 amperes respective ranges. Illustrating the method by which a voltmeter or ammeter is made from the D'Arsonval galvanometer. All the connections may be seen and this sensitive galvanometer is the most convenient lecture table instrument of this type. It is highly recommended. It is especially made to our designs and lends itself to most favorable comments. Duty Free Price..........................	34.00	

VOLTMETERS AND AMMETERS:

		The following line of Standard instruments is offered as the best quality of wall instruments for school use. They are made to our order by a first-class German manufacturer, and will be imported promptly free of duty at the following prices:		
	95-132	**Voltmeter for Alternating Current,** 0 to 120 volts. Duty Free Price..........................	14.00	
	95-133	**Voltmeters for Direct Current:**		
		a 0 to 5 volts in 1-10. Duty Free Price........	14.00	
		b 0 to 10 volts in 1-5. Duty Free Price........	14.00	
		c 0 to 15 volts in 1-5. Duty Free Price........	14.00	
		d 0 to 30 volts in 1-2. Duty Free Price........	14.00	
		e 0 to 120 volts in 2 volts. Duty Free Price........	14.00	
		f 0 to 250 volts in 2 volts. Duty Free Price........	17.00	
		g 0 to 25 millivolts. Duty Free Price........	14.00	
	95-136	**Ammeters for Alternating Current:**		
		a 0 to 10 amperes. Duty Free Price........	14.00	
		b 0 to 20 amperes. Duty Free Price........	14.00	
		c 0 to 15 amperes. Duty Free Price........	14.00	
	95-137	**Ammeters for Direct Current:**		
		a 0 to 5 amperes in 1-10. Duty Free Price........	14.00	
		b 0 to 10 amperes in 1-5. Duty Free Price........	14.00	
		c 0 to 20 amperes in 1-2. Duty Free Price........	14.00	
		d 0 to 15 amperes in 1. Duty Free Price........	14.00	



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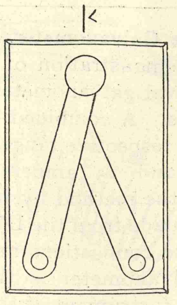

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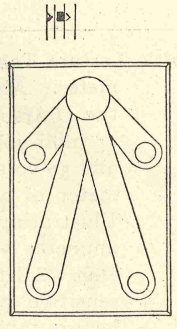

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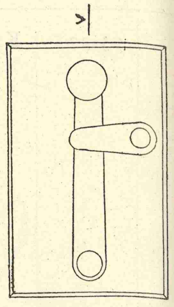

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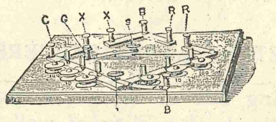

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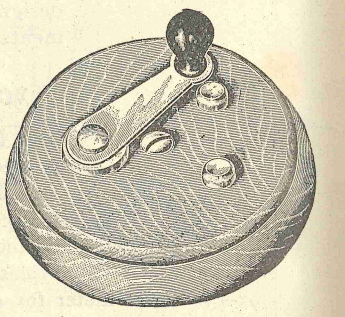

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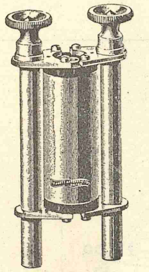

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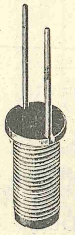

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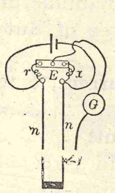

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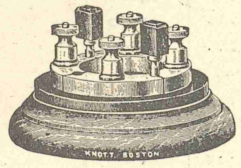

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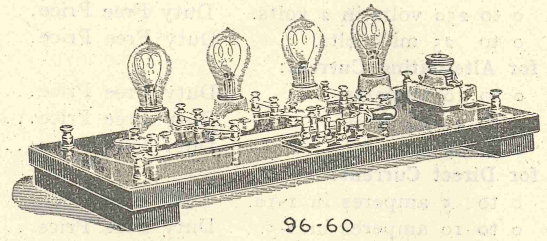

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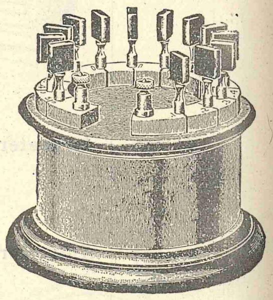

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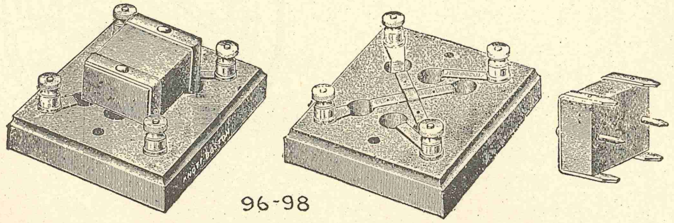

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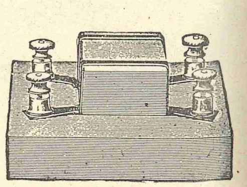
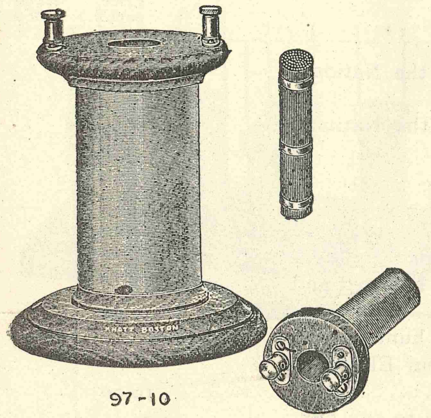


96-90

SECTION 96, ELECTRICITY,—RESISTANCE.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	96-2	**Resistance Coils**, set of eight, according to the National Physics Course	3.00	
	96-6	**Temperature Resistance Coil**, according to the National Physics Course, improved	1.50	
	96-12	**Wheatstone Short-Form Slide Wire Bridge**	3.00	
	96-14	**Wheatstone Meter Bridge**, slide wire	3.75	
	96-19	**Wheatstone Bridge**, square form	5.00	
	96-20	**Plug Resistance Box**, range one to twenty ohms	4.25	
	96-24	**Plug Resistance Box**, range one-tenth to one hundred and eleven ohms	6.00	
	96-26	**Plug Resistance Box**, range one-tenth to one hundred and eleven ohms, with certificate from our Electrical Laboratory	10.00	
	96-30	**Round Plug Resistance Box**, range one-tenth to one hundred and sixty-one ohms	10.00	
		NOTE:—List of high grade resistance boxes and other apparatus will be sent on application.		
	96-49a	**Texas Resistance Box and Bridge**, of highest accuracy, (send for particulars)	85.00	
	96-49b	**Resistance Box**, with range same as preceding, accuracy one-twentieth per cent., (send for circular)	45.00	
	96-54	**Standard Coils**, one to ten ohms, accurate	10.00	
	96-60	**Lamp Resistance**, range 1-8 to two amperes on 110 volt circuit, current reverser and fuse. For use on the lecture table. Send for circular	9.00	
		Note.—Rheostats for arc lights refer to 73-20.		
	96-80	**Single Contact Key**	.50	
	96-81	**Double Contact Key**	1.00	
	96-82	**Break Key**	1.00	
	96-84	**Two-point Switch**	.28	
	96-86	**Three-point Switch**	.34	
	96-90	**Pole Changer**, according to the National Physics Course	.75	
	96-94	**Pole Changer**, Palmer's Plug Pattern, first quality	4.50	
	96-98	**Pole Changer**, Pohl's pattern	1.50	

LIST OF BIOLOGICAL APPARATUS SENT WHEN REQUESTED.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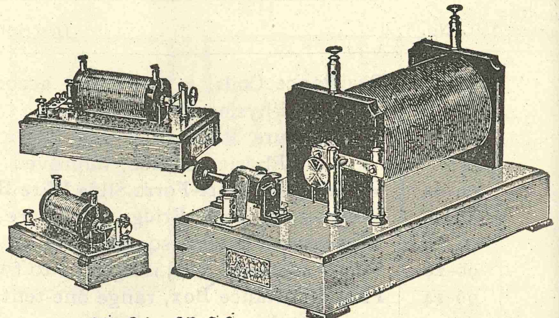
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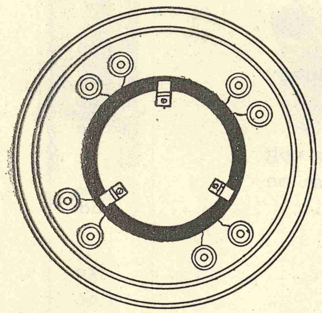
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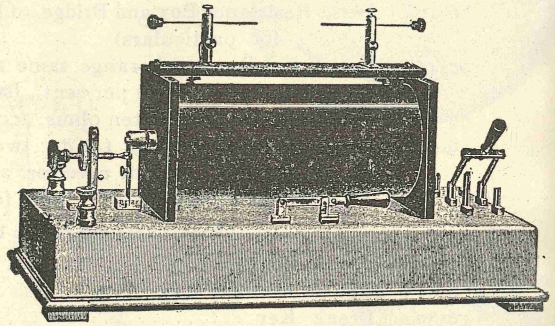
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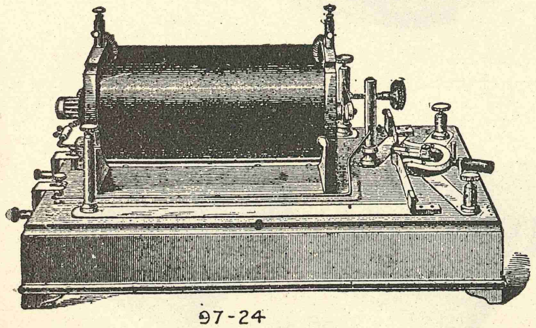
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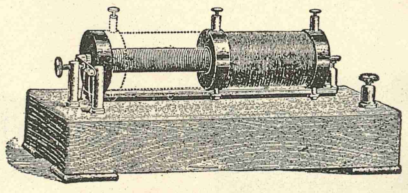
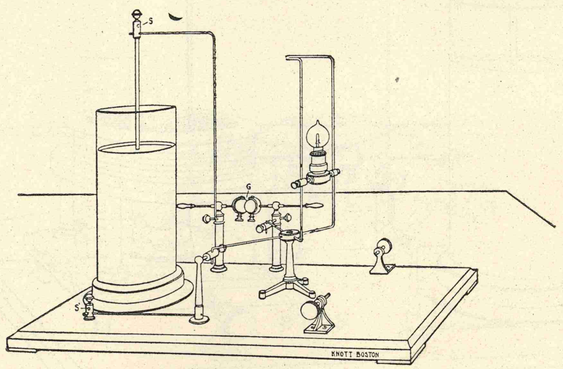

97-16

SECTION 97,—ELECTRICITY,—TRANSFORMERS.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	97-2	**Faraday's Ring,** illustrating the commercial transformer, with binding posts, mounted	2.50	
	97-10	**Primary and Secondary Coil,** efficient winding for best results	7.50	
	97-11	Similar, with make and break	10.50	
	97-12	**Make and Break Attachment,** for 97-10	3.00	
	97-16	**Demonstration Induction Coil,** ¼ inch spark	6.00	
	97-17	**Demonstration Induction Coil,** ½ inch spark	10.00	
	97-24	**Dissectible Ruhmkorff Coil,** showing the condenser, make and break, core, primary and secondary of efficient construction, finely finished for a lecture table piece, duty free	40.00	
	97-30	**Ruhmkorff Coil,** spark 1-8 inch	4.00	
	97-32	**Ruhmkorff Coil,** spark 1-4 inch	6.00	
	97-34	**Ruhmkorff Coil,** spark 1-2 inch	12.00	
	97-36	**Ruhmkorff Coil,** spark 1 inch	27.50	
	97-40	**Ruhmkorff Coil,** spark 3 inch	60.00	
	97-42	**Ruhmkorff Coil,** spark 4 inch	85.00	
	97-44	**Ruhmkorff Coil,** spark 6 inch	100.00	
	97-46	**Ruhmkorff Coil,** spark 8 inch	115.00	
		These coils are made for the **alternating current of 104 volts,** and **direct current of 110 volts,** or for **battery current.** They are also modified for wireless telegraphy or X-Ray work. Full particulars will be given on application. We manufacture and test them under the supervision of our Electrical Testing Department.		
	97-60	**Tesla High Frequency Coil,** for direct current	180.00	
	97-62	Similar for alternating current	150.00	



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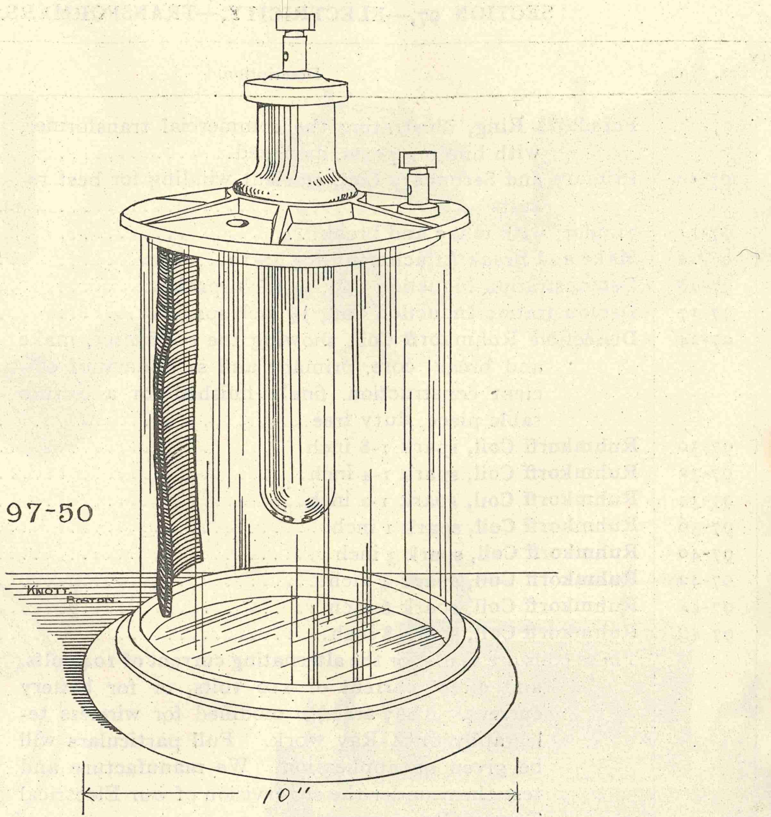

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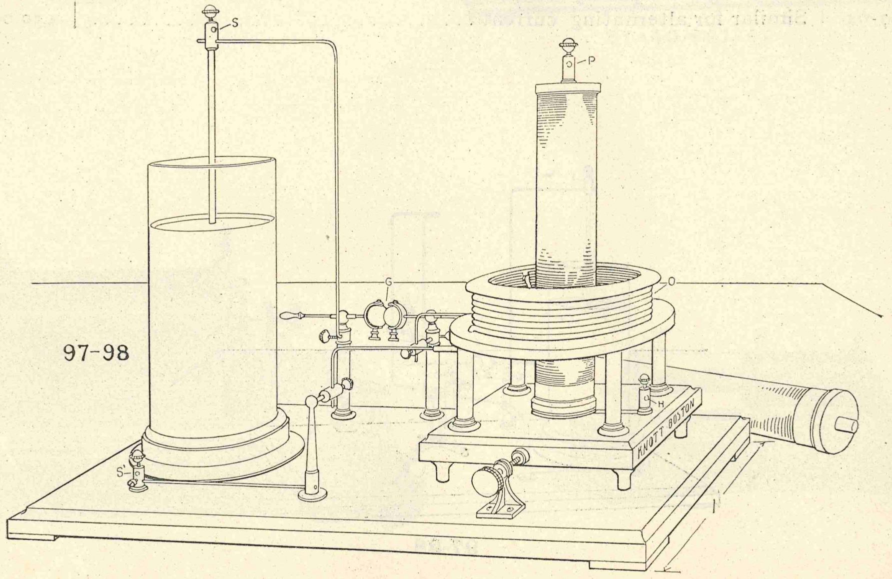
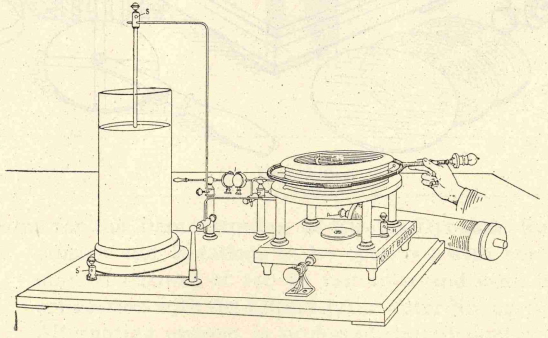


97-98

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	97-50	**New Liquid Interrupter** for use on either alternating or direct currents, from 73 to 200 volts. Giving uniformly satisfactory results from the commercial current. For operating induction coils. It may be used with coils that have previously had other current breakers. It has no platinum points to deteriorate and after once installed in the lecture room needs no further care from year to year. Duty Free Price..........................	16.00	
		We recommend it with our coils 97-40 to 97-46 inclusive and Apparatus No. 97-70.		
	97-98	**Tesla Induction Coil** for demonstration of experiments as described in Tesla's lectures. To be used with Induction Coils No. 97-40, 97-46 inclusive, and Liquid Interrupter No. 97-50. Duty Free Price.......	55.00	
		Accessory Apparatus:		
	97-98b	**Apparatus for Illustrating Impedance.** Duty Free Price........	6.00	
	c	**Apparatus for Vacuum Tube,** illustration in electrified fielding, including Tesla Lamp, Crookes' Tube and two other tubes without electrodes, and discs. Duty Free Price............................	16.00	
	d	**Apparatus for Illustrating Brush Discharge and Electric Nodes.** Duty Free Price............................	9.00	
	e	**Apparatus for Illustration of Induction and Illuminating Lamps.** Duty Free Price............................	6.00	

All the above apparatus is on exhibition in our sample room.



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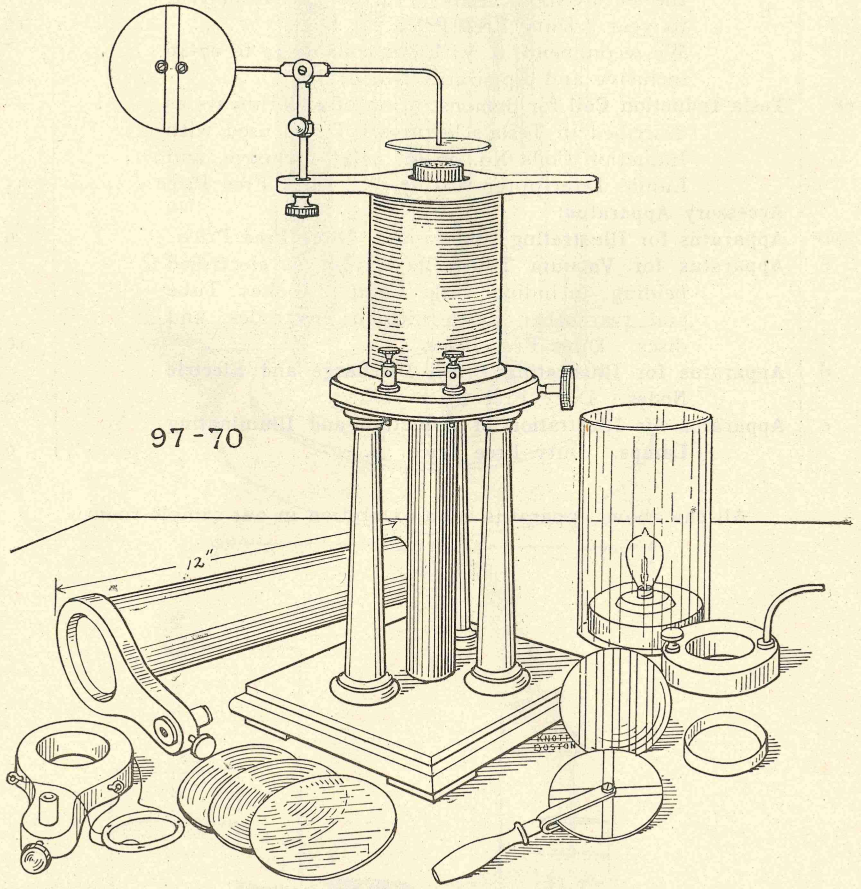

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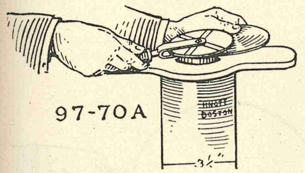

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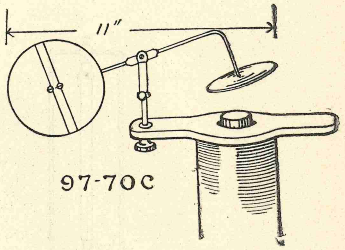

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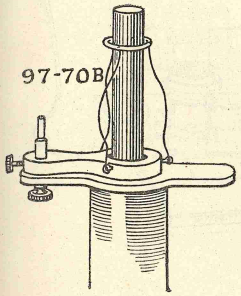

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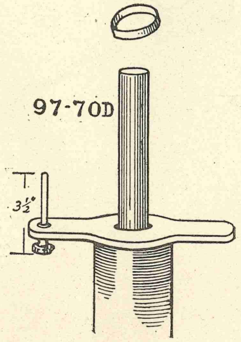

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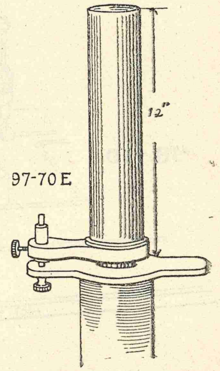

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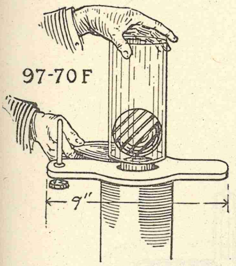

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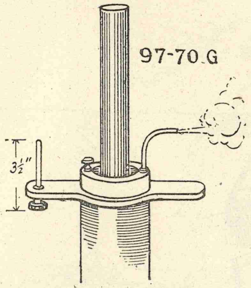

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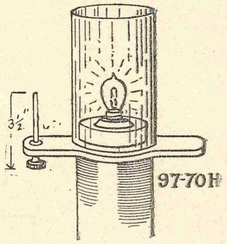
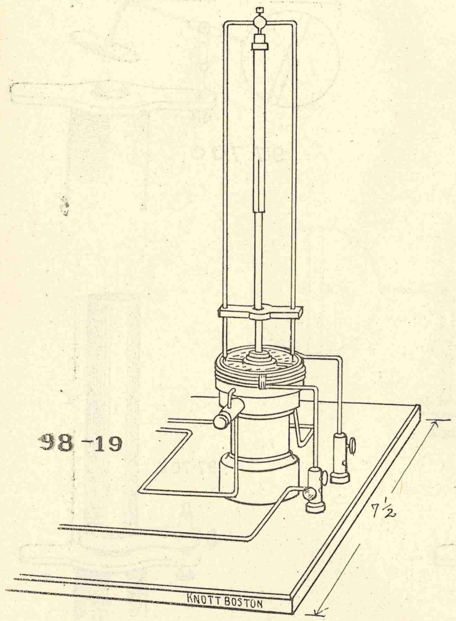
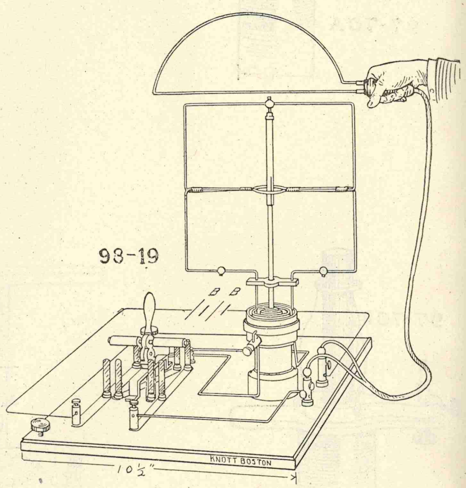


97-70H

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	97-70	**Apparatus for the Demonstration of Electro-Dynamic Repulsion and Rotation,** to be operated with commercial current of 110 to 120 volts and used in connection with the Liquid Interrupter No. 97-50. Alternating current is preferred, but it operates favorably upon direct current. This apparatus is on exhibition in our sample room. Price of the outfit complete, as illustrated. Duty Free...	55.00	


98-19
7½
KNOTT BOSTON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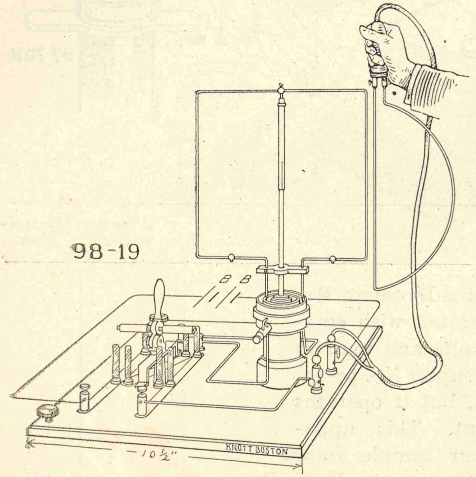
B B
KNOTT BOSTON
10½"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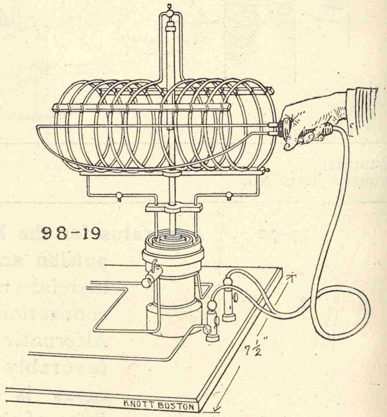
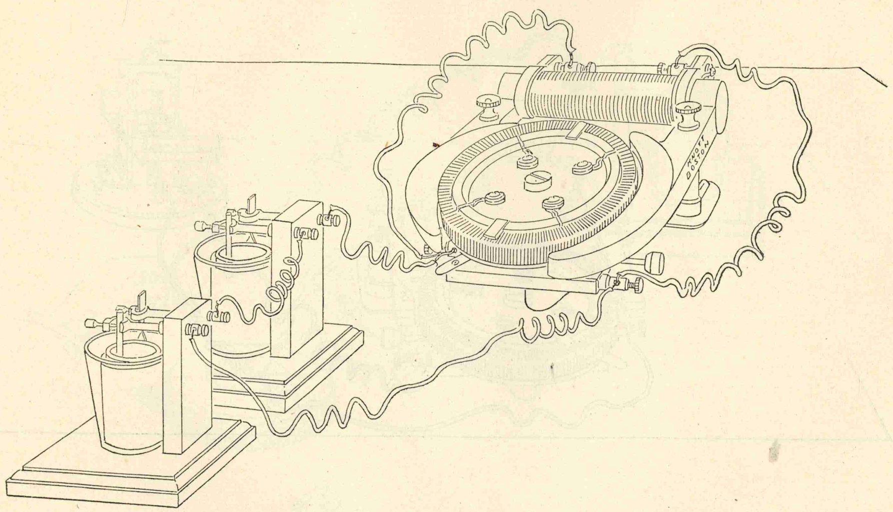
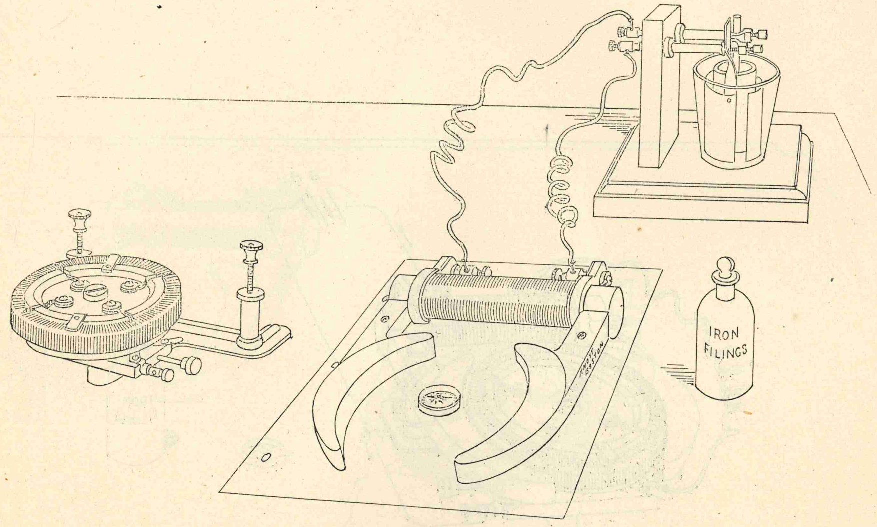
B B
KNOTT BOSTON
10½"

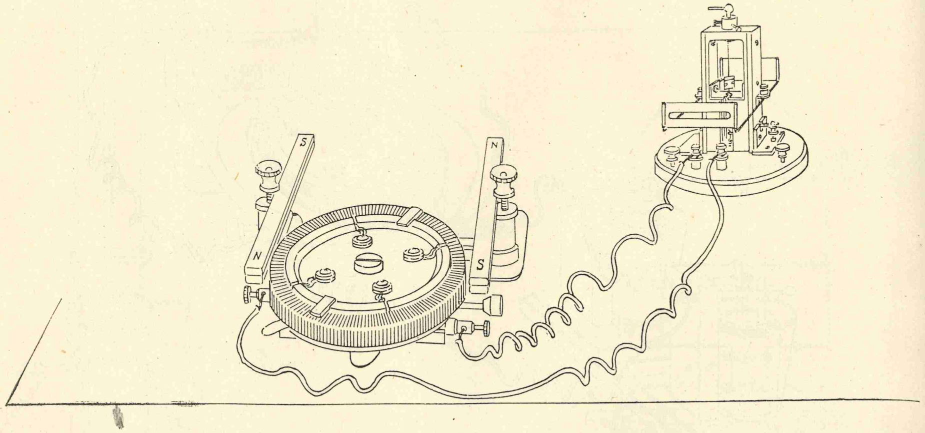

98-19
7½"
KNOTT BOSTON




IRON FILINGS

98-8 These illustrations show forcibly the value of the new Gilley Gramme Machine in teaching the many principles involved in the dynamo and motor.

(Patent applied for.)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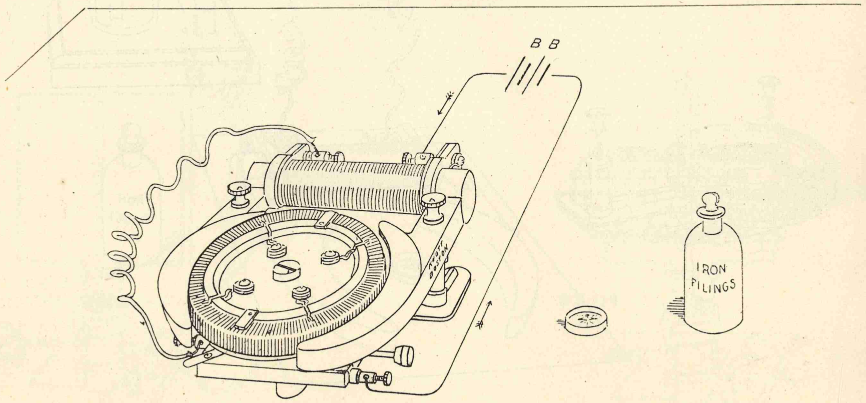
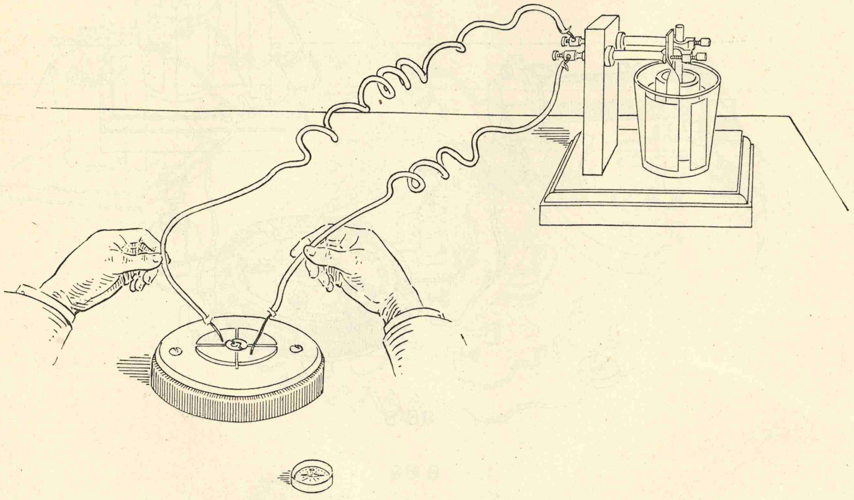
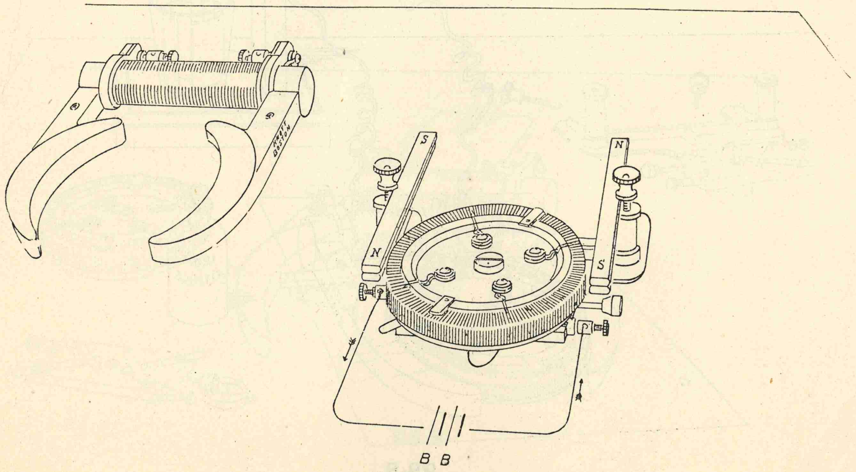

B B
IRON FILINGS

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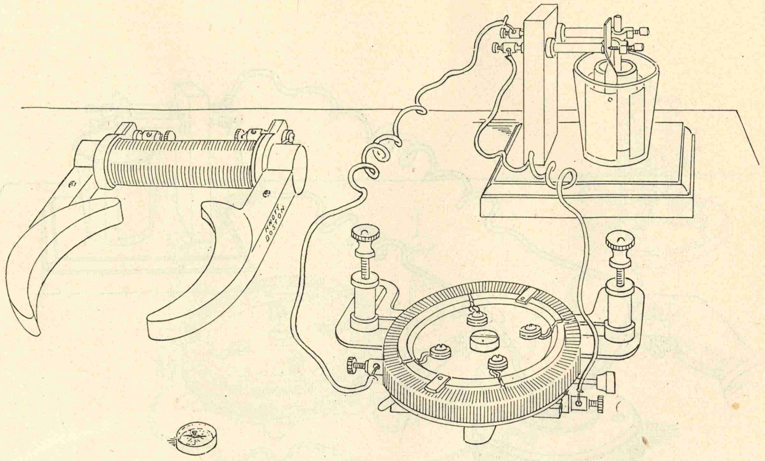

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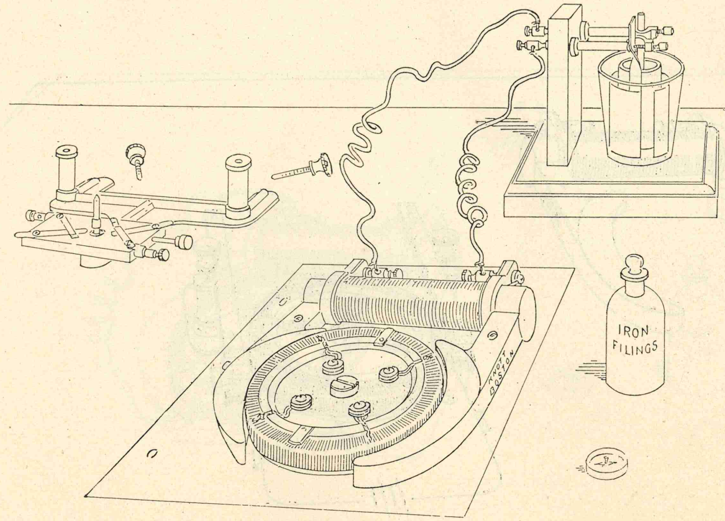

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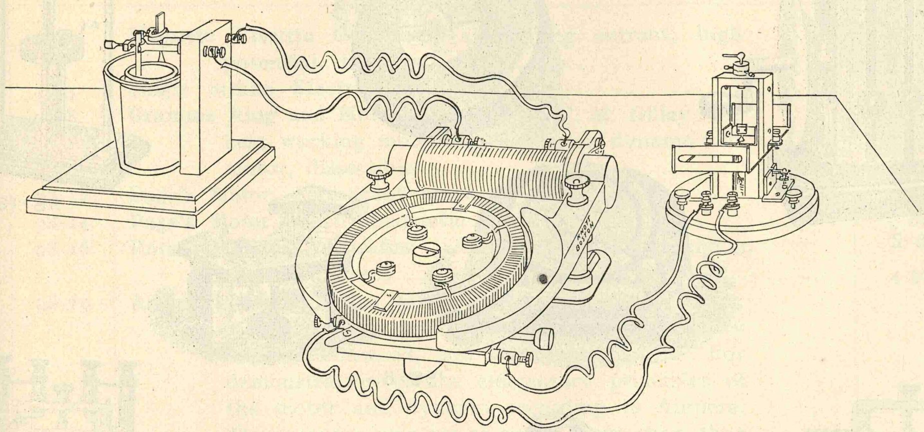

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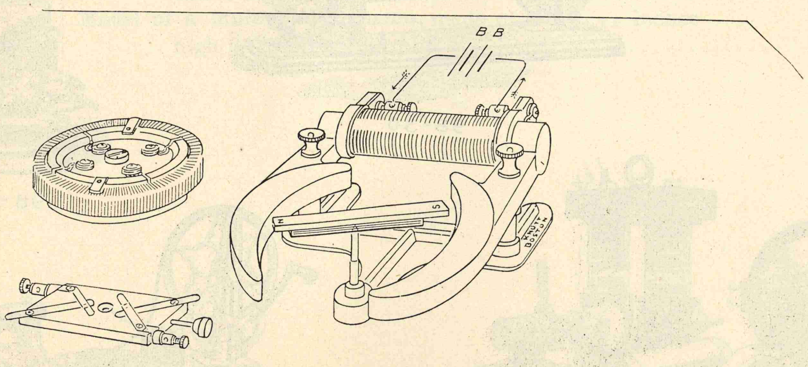

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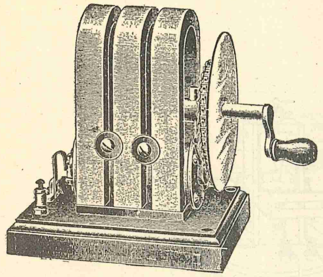

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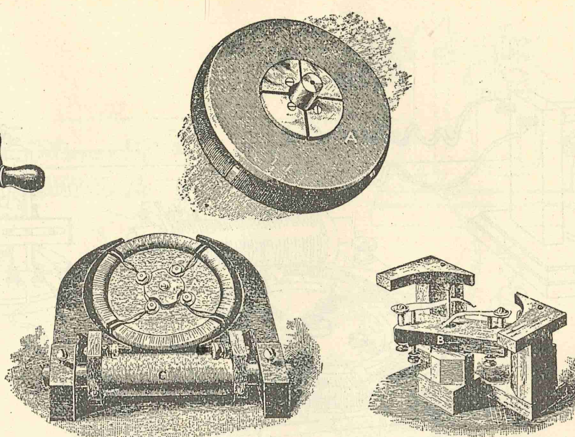

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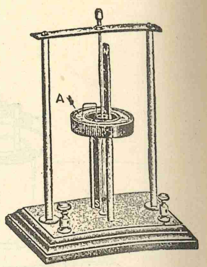

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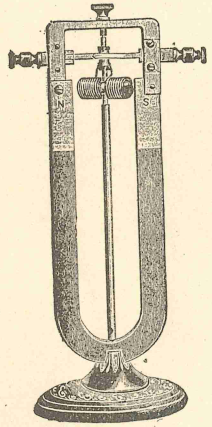

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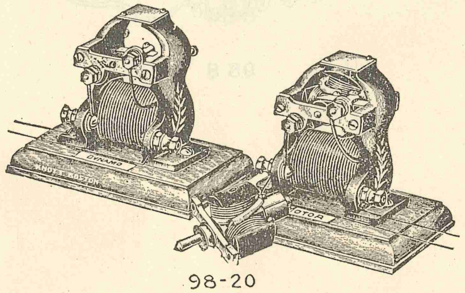

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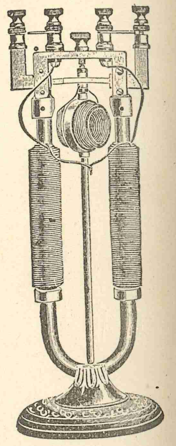

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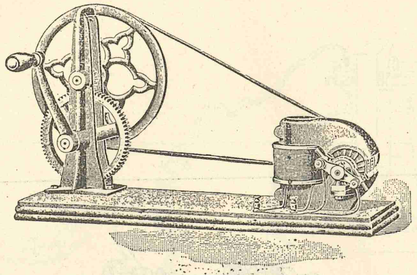

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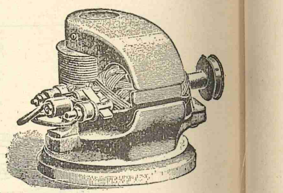

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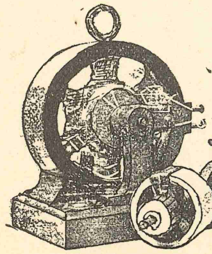

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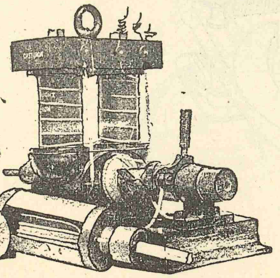

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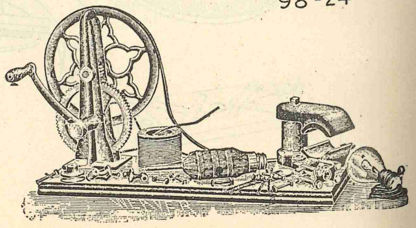
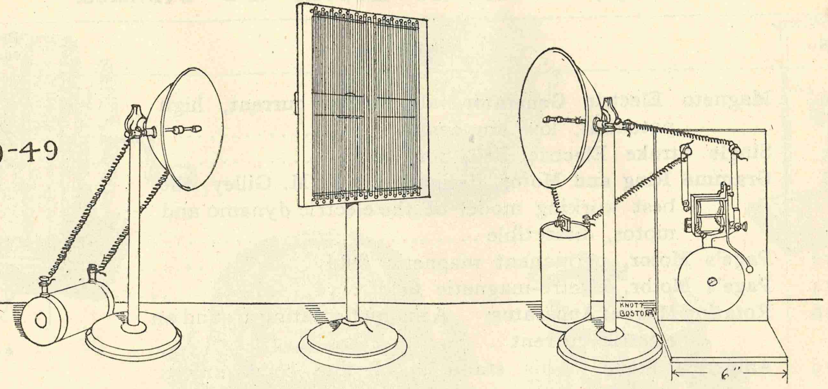


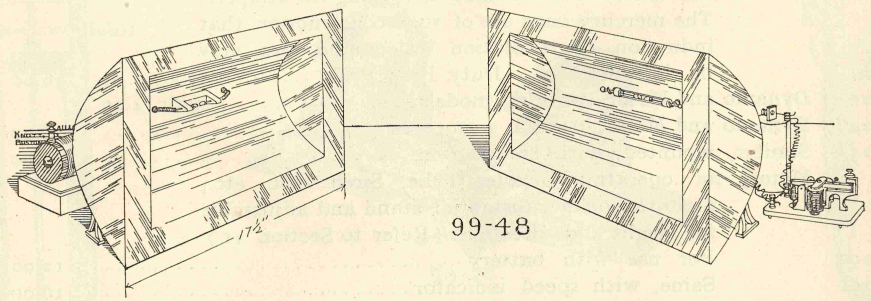
98-36

SECTION 98, ELECTRICITY—MOTORS AND DYNAMOS.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	98-2	**Magneto Electric Generator,** alternating current, high potential, low amperage	7.20	
	98-3	**Single Stroke Electric Bell,** for above	2.50	
	98-8	**Gramme Ring and Motor,** designed by F. M. Gilley, the best working model of the electric dynamo and motor, dissectible	12.00	
	98-12	**Page's Motor,** permanent magnetic field	9.00	
	98-14	**Page's Motor,** electro-magnetic field	9.00	
	98-16	**Rotating Magnet Apparatus:** A magnet rotating around an electric current	4.50	
	98-19	**Ampere's Stand.** This stand is of fine construction, mounted upon mahogany base, with mercury cups of boxwood, and aluminum figures. For demonstration of the elementary principles of the motor and dynamo according to Ampere. The mercury cups are of such construction that induction by revolution or commutation may be demonstrated. Duty Free Price	30.00	
	98-20	**Dynamo and Motor,** working models	pair, 4.00	
	98-24	**Dynamo and Motor,** 5 volts, 2 amperes	6.00	
	98-25	Similar, mounted, with hand power	10.00	
		Motor, for operating Geissler Tube, Siren Disc, etc., mounted on a substantial stand and adjustable for height and direction: (Refer to Section 11.)		
	98-29a	For use with battery	12.00	
	98-29b	Same, with speed indicator	16.00	
	98-29c	For use with 110 volt direct current	13.00	
	98-29d	Same, with speed indicator	17.00	
	98-30	**Hand Power Dynamo,** 75 watts, best	35.00	
	98-36	**Hand Power Dynamo,** dissectible, alternating or direct current, 75 watts, best	40.00	
	98-38	**Model of a Bipolar Dynamo,** made of wood, Edison type, direct current	50.00	
	98-40	**Model of a Multipolar Dynamo,** made of wood, 11 inches high alternating current	50.00	

99-49





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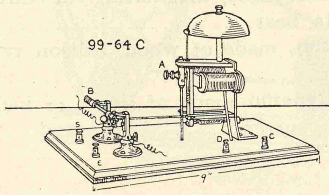
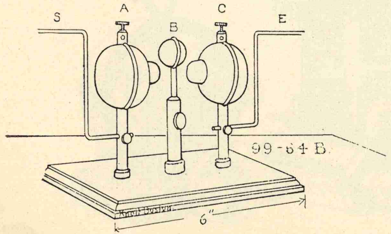
99-64 C





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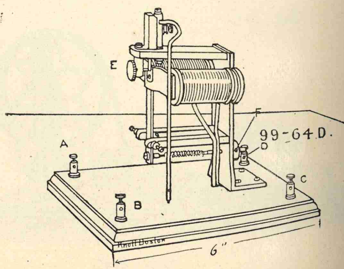


99-64 D.

Wireless Telegraphy has brought more prominently before the scientific world the character of Ether or Hertzian Waves.

The daily press often speaks of difference in wave lengths. The apparatus which follows is made to illustrate some of the peculiarities of these waves.

A spark at the oscillator of this apparatus induces waves which may be interrupted by the cross grating, and are not interrupted by a grating in the same plane as the waves.

The effect is produced on a coherer through which a battery current passes, in connection with an electric bell. The operation is stopped by tapping it with a lead pencil or some similar device.

Reflection can also be illustrated by placing the instruments at right angles, with a metallic reflector at the apex of the angle. The advantage of the cylindrical parabollic reflectors over the circular parabollic ones is in the form of the waves induced.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	99-48	**Hertz Wave Apparatus.** Complete set without induction coil and batteries. Duty Free Price..................	40.00	
	99-49	Similar parts to 99-48. Duty Free Price......................	36.00	
		Wireless Telegraphy. The demand for demonstration outfits of wireless telegraphy has called for something more than the regular telegraph instruments. Therefore we have had made for us a special set. This set is of inexpensive construction and is very successful. It has an operating distance of one to two hundred feet.		
	99-64a	**Induction Coil** No. 97-34, or larger.		
	b	**Special Oscillator,** adjustable for spark length. Duty Free........	4.50	
	c	**Coherer, Decoherer and Tapping Bell.** Duty Free..............	6.00	
	d	**Relay.** Duty Free..	6.00	
	e	**Set of Four First Class Dry Cells,** (92-36)..........................		
	f	**Morse Writing Machine** for connection with the Relay. Duty Free..	14.00	
	g	**Sending Key,** (96-80)................................ **Complete Set.** Duty Free..................................	40.00	

WIRELESS TELEGRAPH

Complete Working Instruments.

Many systems of wireless telegraphy have been devised, but all depend on two very simple principles. The first, which we owe to James Clerk Maxwell and Rudolph Hertz, is that wave motions are set up in the ether by an electric spark. The second, discovered by Branley, is that when such waves in the ether strike upon a collection of metal filings, (the **coherer**), the latter **cohere** and form a chain of particles capable of conducting a current of electricity.

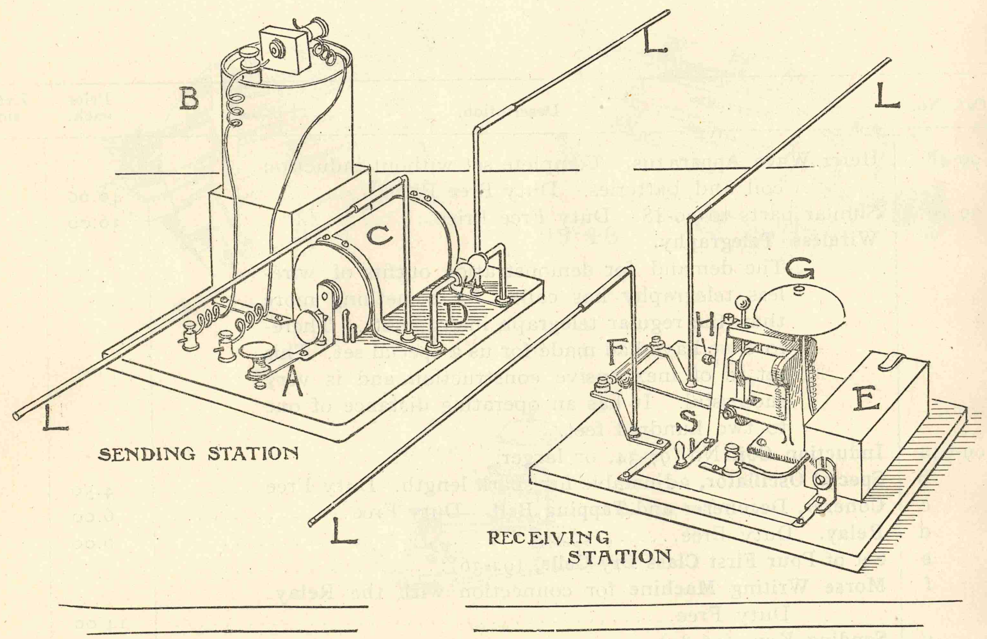


Fig. 1

All sending stations are therefore merely devices for starting out waves in the ether by means of an electric spark; and all receiving stations are devices for using the energy of these waves to ring a bell or to operate a Morse sounder.

WIRELESS TELEGRAPH

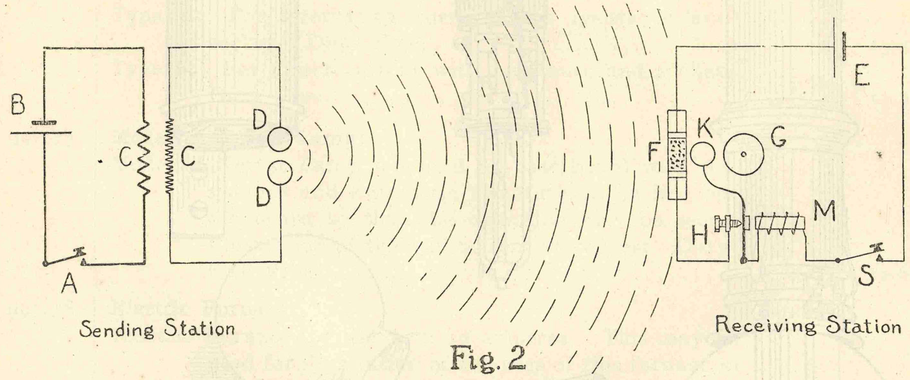


Fig. 2

Directions for Setting Up.

Adjust the knobs, D, D, of the sending station so that the air space between them is about the same as the thickness of a calling card. On pressing the sending key A for an instant, a small torrent of sparks should be visible between the knobs. These sparks are necessary for the production of the ether waves.

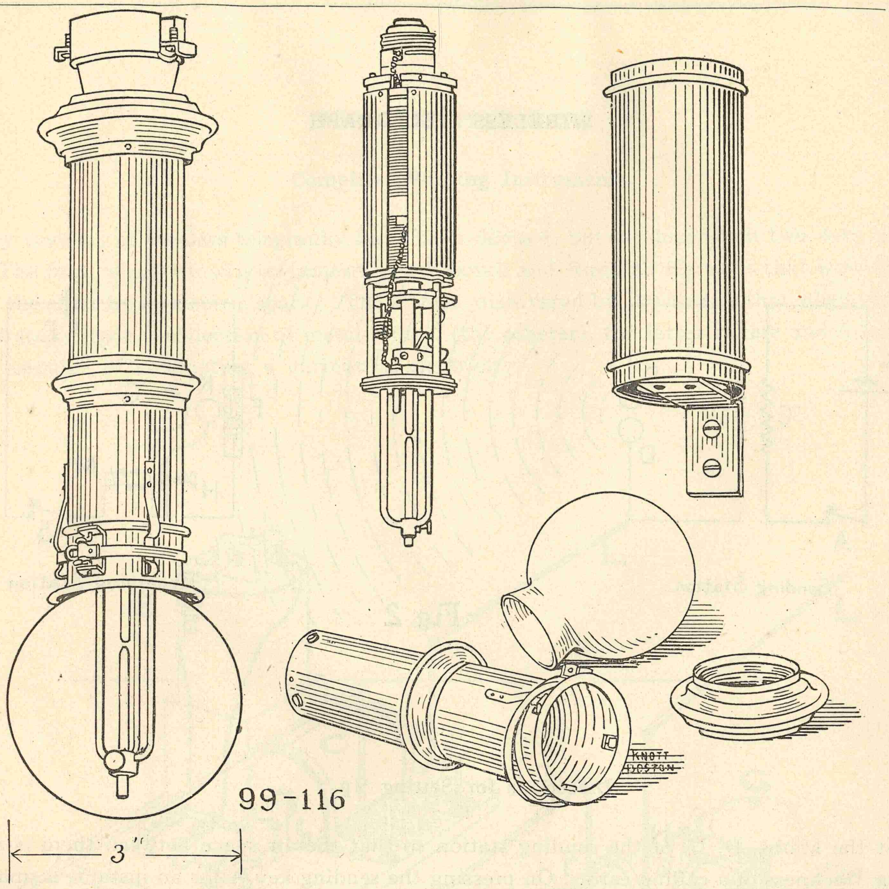
Slip the four **antennæ** (L, L) in place as shown in Fig. I.

Close the switch S of the receiving station and test the receiving instrument by laying a wire for an instant across the terminals of the coherer F; this should shunt the local current from E around the coherer and ring the bell G. Remove the short-circuiting wire, but leave the switch S closed.

Place the two stations near to each other as shown in Fig. I, and press the sending key A. The bell G will respond. The distance between the two stations may now be increased up to two meters, but beyond this distance the instruments are not designed to work.

If the bell G does not ring when the sending key is pressed, it may be necessary to shake the coherer F by moving the knob K by hand. When the instruments are not in use, the switch S should be left **open** to prevent any accidental short-circuiting of the cell E. If the instruments do not work when near together, fresh dry cells should be substituted in each station. The tension of the spring which holds the armature of the electromagnet M should be very slight.

99-62 .... 10.20



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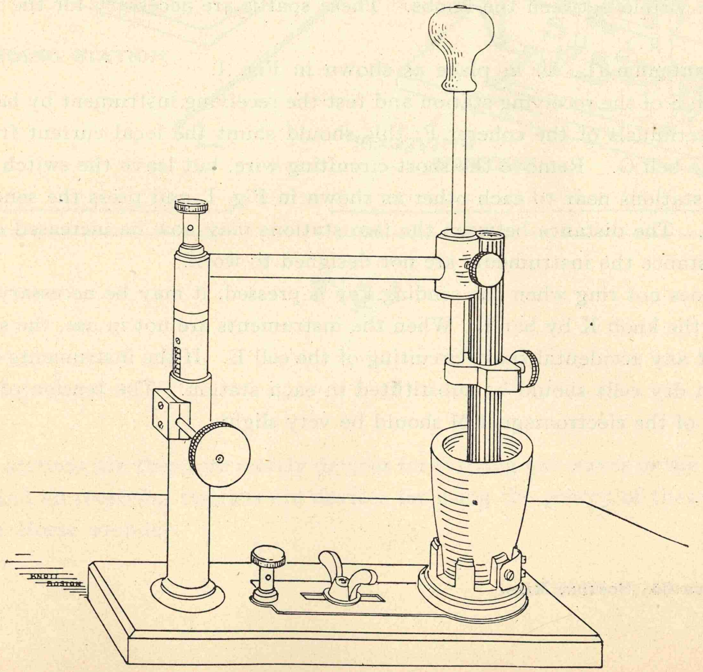
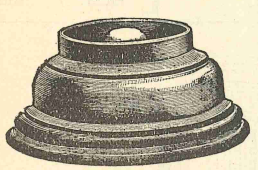


99 118

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	99-116	**Model of Arc Light:** Model of Arc Light to be operated on 110 volt direct current, 104 volt alternating current, with adjustable resistance. This arc is an automatic arc of such construction that it may be dissected and the principles of construction illustrated. It uses three amperes and gives 180 candle power.		
		Type A: For alternating current with resistance and socket. Duty Free..........	13.50	
		Type B: For direct current with resistance and socket. Duty Free..........	13.50	
	99-117	**Model of Nernst Lamp:** Model of Nernst Lamp mounted on base board with resistance and automatic armature, all in line on the board so that the operation may be seen. Illustration of this will be sent on request. Duty Free Price..........	12.00	
	99-118	**Electric Furnace:** Electric Furnace for use with 10 amperes. This may be used for illustration of the uses of this furnace in making carbide aluminum, etc. Duty Free Price..........	26.00	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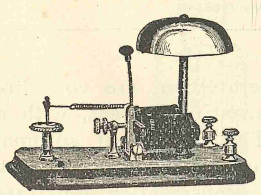
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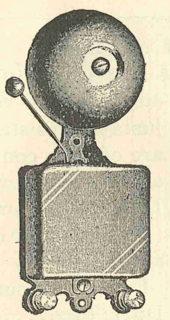
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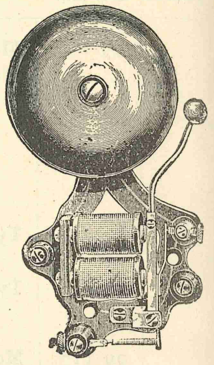
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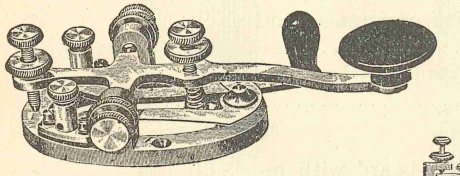
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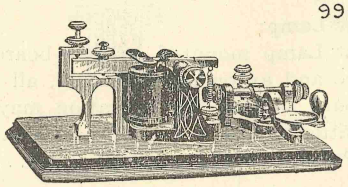
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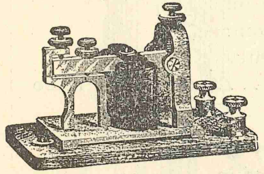
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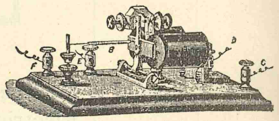
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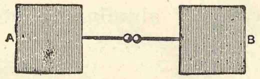

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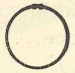
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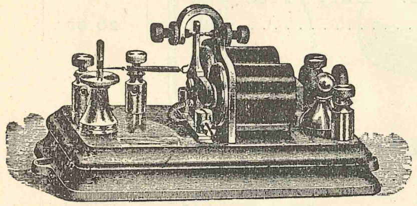
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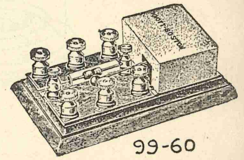
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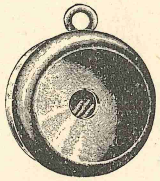
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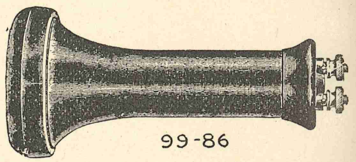
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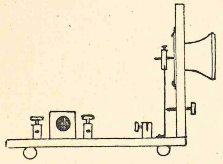
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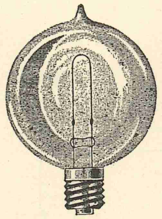
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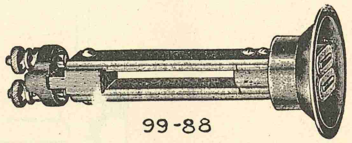
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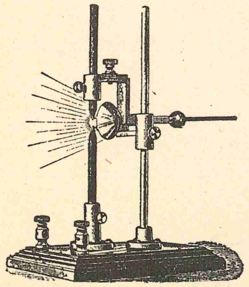
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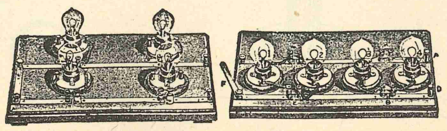
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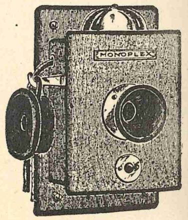
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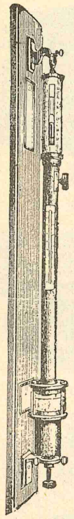
SECTION 99, ELECTRICITY,—APPLIED.

Quantity wanted.	Cat.No.	Description.	Price each.	Extension.
	99-2	**Push Button,** wood base	.20	
	99-6	**Electric Bell,** 2½ inch	.40	
	99-8	**Electric Gong,** 4 inch	1.00	
	99-10	**Single Stroke Electric Bell**	6.00	
	99-14	**Telegraph Key,** on wooden base	2.00	
	99-16	**Telegraph Sounder,** on wooden base	3.00	
	99-20	**Complete Set of Sounder and Key,** in parts, to be assembled by the students	2.00	
	99-22	**Telegraph Sounder and Key,** mounted on single base	3.80	
	99-26	**Telegraph Relay,** low resistance	3.50	
	99-28	**Telegraph Relay,** adjusted resistance for wireless telegraphy	6.10	
	99-40	**Single Spark Oscillator,** according to Hertz	3.50	
	99-46	**Resonator,** with wooden clamp	2.00	
	99-60	**Wireless Telegraphy Instruments,** coherer and decoherer	6.00	
		Discharge Balls, brass, for wireless telegraphy demonstration and for use with induction coils:		
	99-66a	**For Coils,** of ¼ to ½ inch spark .....pair,	.50	
	99-66b	**For Coils,** of 1 to 3 inches spark .....pair,	.75	
	99-66c	**For Coils,** of 3 to 8 inches spark .....pair,	3.50	
	99-78	**Microphone,** Blake or Carbon Transmitter, with induction coil	4.25	
	99-84	**Watch Case Telephone Receiver**	1.20	
	99-86	**Commercial Telephone Receiver**	2.00	
	99-88	**Dissectible Telephone Receiver**	2.00	
	99-94	**Dissected Telephone Parts,** to be assembled by the pupils	2.00	
	99-98	**Battery Call Telephone**	3.50	
	99-100	**Incandescent Lamp,** one candle power	1.10	
	99-102	**Incandescent Lamp,** three candle power	1.10	
	99-104	**Incandescent Lamp,** eight candle power	1.10	
	99-110	**Incandescent Lamp System,** with lamps, most complete outfit	9.00	
	99-114	**Model Automatic Arc Lamp**	4.50	
	99-150	**Projection Lanterns,** refer to 73-150, etc.		

WE CALL SPECIAL ATTENTION TO OUR LABORATORY TABLES.

A list of them will be sent when requested.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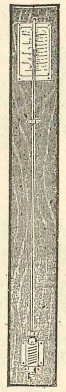
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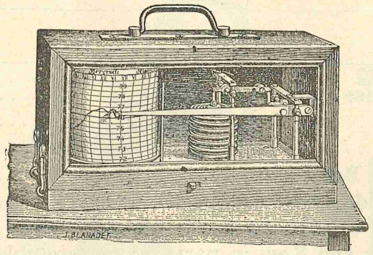
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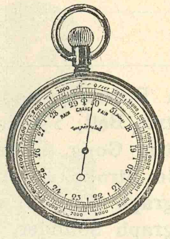

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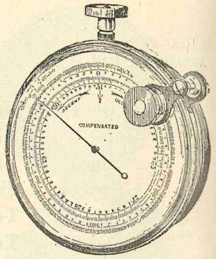

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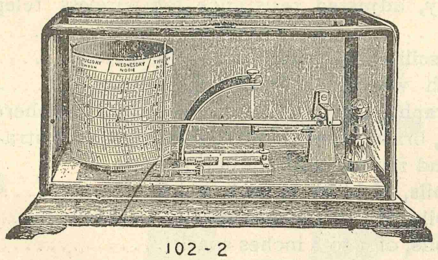
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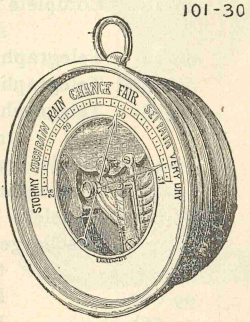

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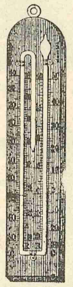
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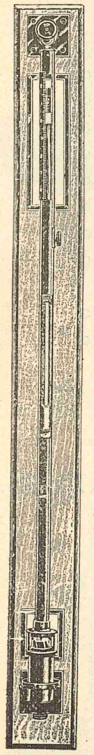
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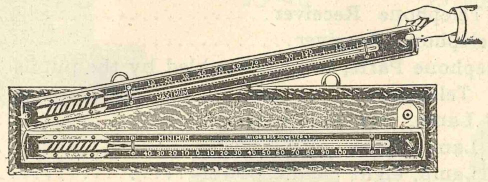

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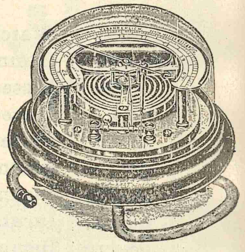
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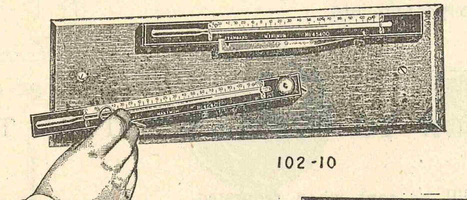
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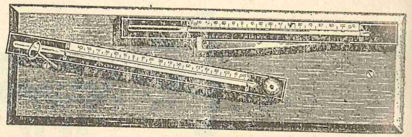
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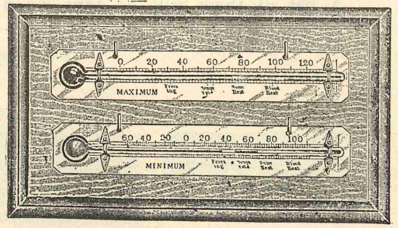
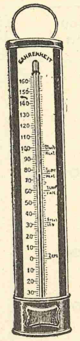


102-24

SECTIONS 101 to 109, WEATHER BUREAU SUPPLIES, STANDARD TYPES.

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	101-2	**Barometer,** Standard, Fortin pattern, very large bore, scale in inches, reading to .002, mahogany back board, with white porcelain plates. The best and most accurate barometer. Duty free price	90.00	
	101-4	**Barometer,** Fortin Weather Bureau pattern, bore 3-10 inches, millimeter and inch scale, with vernier, duty free price	38.00	
	101-6	**Back Board,** finished, for same, with white porcelain plate and proper suspension	6.00	
	101-10	**Barometer,** Pendant form, for school and college use, L. E. Knott Apparatus Company's design, millimeter and inch scale, Fortin principle, accurate. Send for circular	7.50	
	101-20	**Barometer,** Recording type (Barograph), accurate Aneroid construction, with reliable clock works, eight day works, special duty free price	30.00	
	101-22	**Similar,** with one day clock movement, special duty free price	23.00	
	101-30	**Barometer,** Aneroid, specially designed for accurate measurements by the militia, surveyors or explorers, diameter five inches, altitude scale 10,000 feet, vernier reading with rack and pinion, direct reading to feet, thermometer attached, aluminum case, enclosed in a leather bag with sling strap, accurately compensated	84.00	
	101-32	**Barometer,** Aneroid, weather and laboratory scale, four inches diameter, brass case, graduated in millimeters and inches, visible works, very sensitive	4.80	
	101-34	**Barometer,** Aneroid, pocket size, one and three-quarters inches diameter, for mountain climbing, sometimes called an Altitude Meter, range 10,000 feet **Note:—Adjusted to other ranges to order.**	9.00	
	101-36	**Barometer,** Demonstration pattern, showing the works under a glass bell, connected with a tube for demonstration, special duty free price	11.00	
	102-2	**Thermometer,** Recording (Thermograph), range 0 to 100 degrees Fahrenheit, similar in construction to the barograph, eight day clock movement, special duty free price	30.00	
	102-4	**Similar,** with one day clock movement, special duty free price	23.00	
	102-10	**Thermometers,** Standard, of extreme precision, United States Weather Bureau pattern, maximum and minimum, self registering	11.00	
	102-20	**Thermometer,** Maximum and Minimum, on antique oak, very satisfactory, secondary school instrument	3.00	
	102-22	**Thermometer,** Maximum and Minimum, Sixe's type, mounted on boxwood	3.00	
	102-24	**Thermometer,** Maximum and Minimum, of inexpensive construction	1.50	



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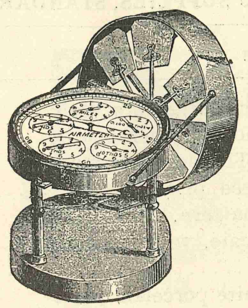

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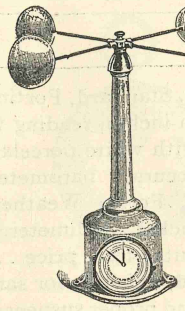

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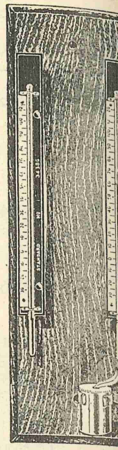

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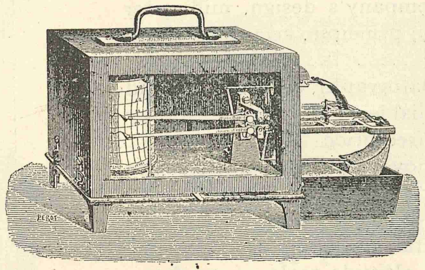

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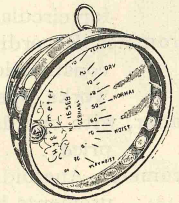

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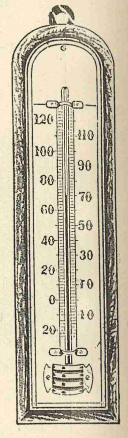

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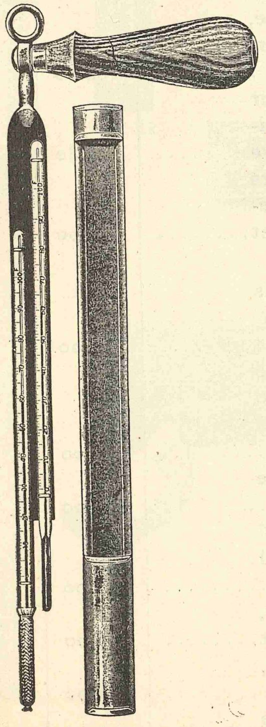

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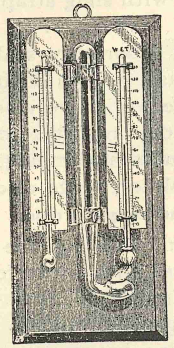

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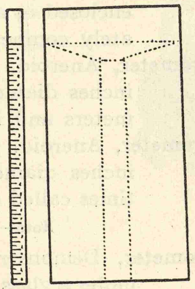

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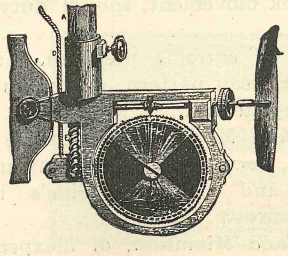

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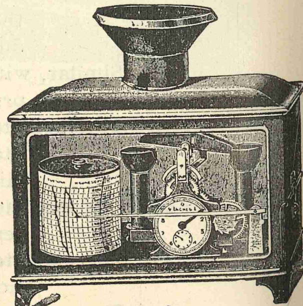

105-2

Quantity wanted.	Cat. No.	Description.	Price each.	Extension.
	102-30	**Thermometer,** quick reading, weather thermometer especially for school rooms, air range	1.50	
	102-32	**Thermometer,** tin case, weather thermometer, seven inches long	.25	
		Thermometer, for chemical use, refer to Order List of Physics Laboratory Equipment.		
	103-2	**Wind Gauge,** or Anemometer, portable, six dials to 10,000,000 feet	22.50	
	103-10	**Wind Gauge,** or Anemometer, Robinson pattern, with four well supported cups, dial with zero set, special duty free price	38.00	
	104-2	**Hygrometer,** Recording, similar in construction to the barograph, with eight day clock movement, in a case	40.00	
	104-4	**Hygrometer,** United States Weather Bureau type, accurate thermometers, pair on base with printed table	8.00	
	104-4a	**Extra Printed Tables**	.25	
	104-10	**Hygrometer,** or Psychrometer, sling pattern, scale 0 to 100 degrees Fahrenheit in single degrees, with table and directions for reading the relative humidity, quick and accurate results	9.00	
	104-20	**Hygrometer,** or Wet and Dry Bulb Thermometer, very satisfactory, secondary school instrument	3.00	
	104-30	**Hygrometer,** quick reading and mechanical. This instrument fills a place where one desires to measure the rapid relative changes in humidity	2.00	
	105-2	**Rain Gauge,** Recording and Indicating, similar in construction to the barograph, with five-inch funnel, eight day clock movement, special duty free price	30.00	
	105-10	**Rain Gauge,** usual type, metal container, collecting can and funnel with measuring stick	2.75	
	109-2	**Current Meter,** for measuring the current flow of rivers, reading in feet, furlongs and miles per hour, with explicit directions	55.00	

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Clamps: Burette,
    Condenser,
    Test Tube,
Glass Cutters,
Horn Spatulas,
Pinchcocks,
Test Tube Racks and Holders,
Ring Stands,
Wire Gauze,
Extraction Apparatus,
Burettes,
Condensers,
Cylinders: Graduated,
    Plain,
Eudiometers,
Gas Measuring Tube,
Pipettes,
Thistle Tubes,
Test Tubes,
Graduates,
Beakers: Lip,
    Plain,
    Copper,
    Agate,
Bottles: Drop,
    Glass Stoppered,
    Open,
    Woulff,
    Aspirator,
    Labeled,

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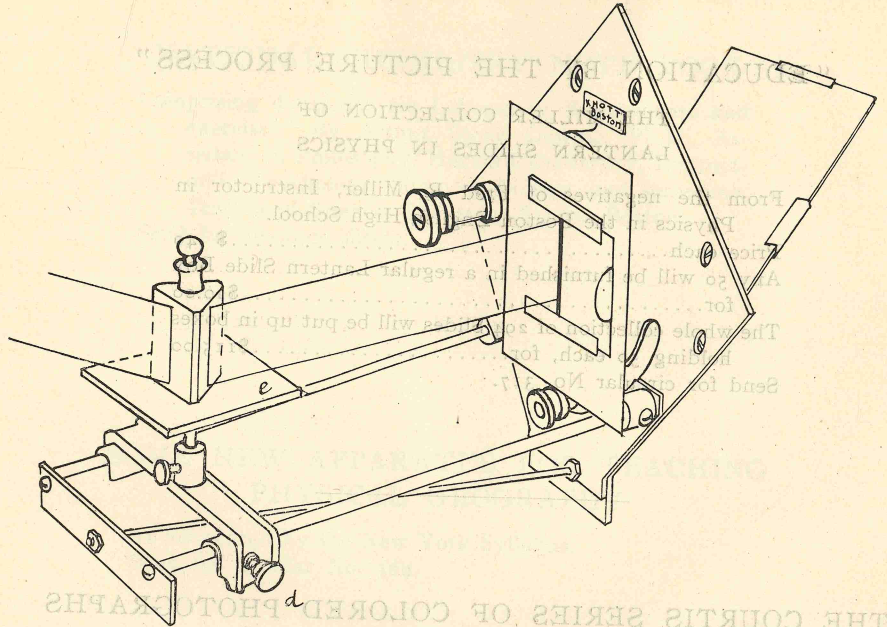
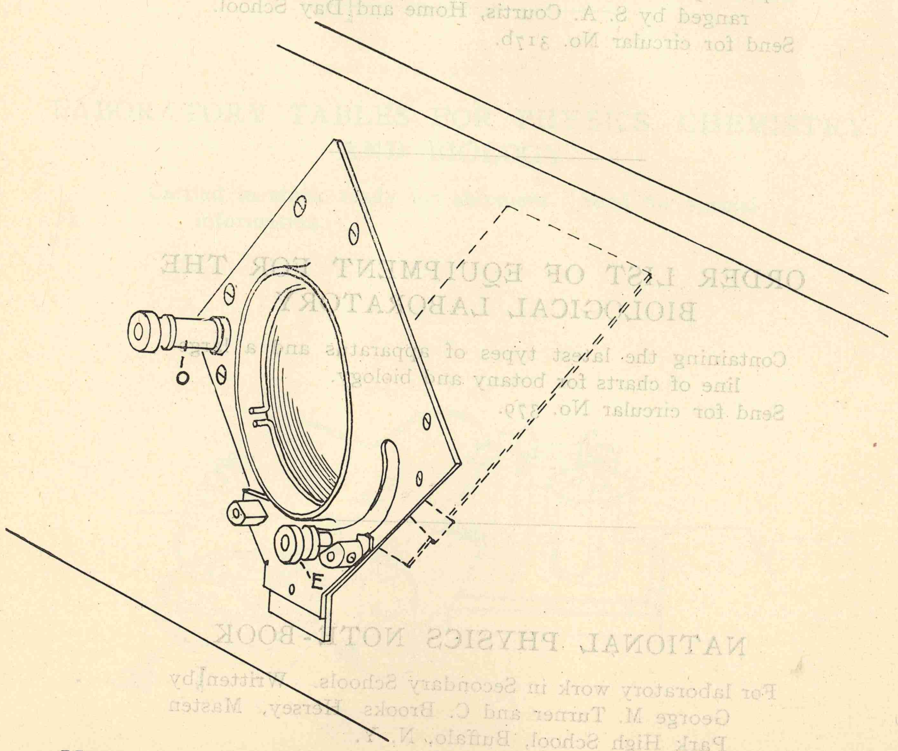
Flasks,
Funnels,
Gas Generators,
Glass Tubing,
Retorts,
Casseroles,
Crucibles,
Dishes,
Mortars,
Air Test Sets.
Asbestos,
Gas Bag,
Blue Glass,
Charcoal Blocks,
Chemicals,
Corks,
Waste Jars,
Labels,
Platinum,
Distilling Apparatus,
Air Baths,
Sand Baths,
Water Baths,
Pneumatic Troughs,
Antimony Rubber Stoppers,
Antimony Rubber Tubing,
Tromp,
Physical Laboratory Tables,
Chemical Laboratory Tables,
New Gas Cocks,
New Water Faucets,
Dissecting Microscopes,
Scissors,
Forceps,
Needles,
Microscopic Slides,
Microscopic Covers,
Compound Microscopes,
Catalogs.

The above items are not included in this order sheet.

Information will be cheerfully given.



IV. 73-400



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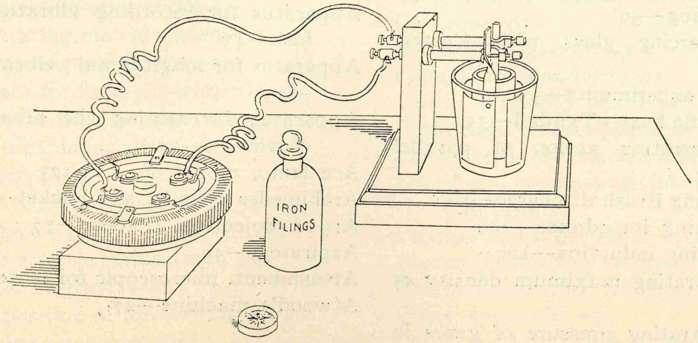

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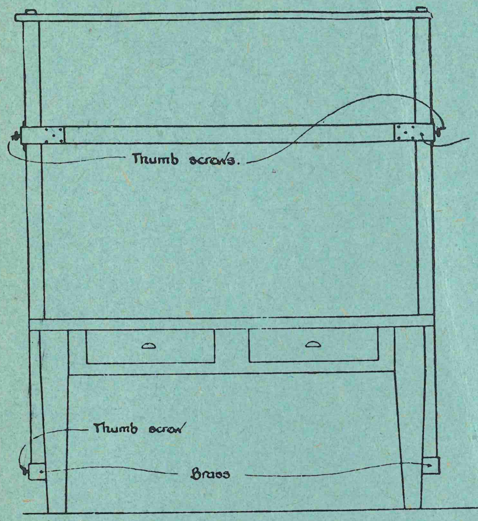
LABORATORY TABLES

FOR

PHYSICS, CHEMISTRY AND BIOLOGY



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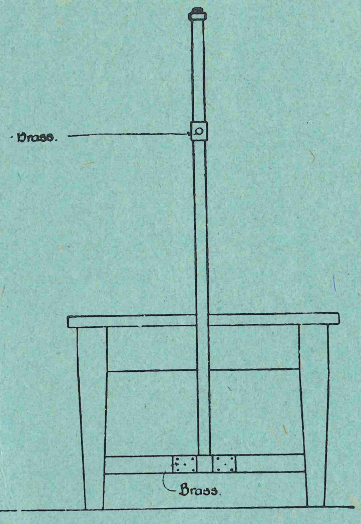
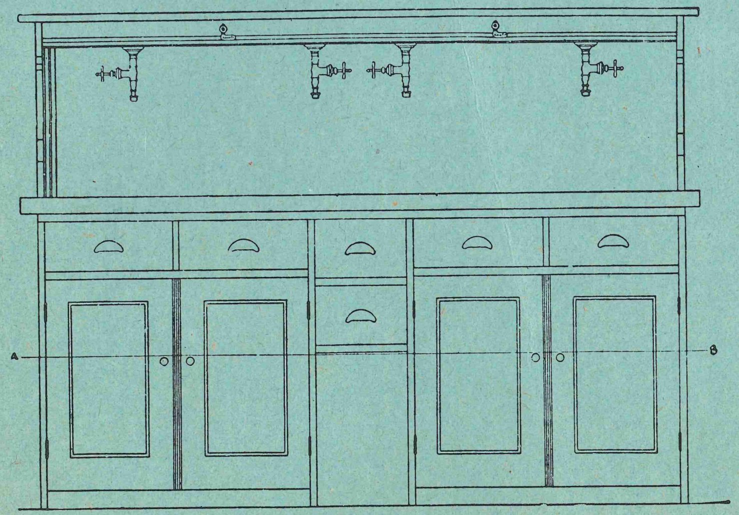


End Elevation



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16 Harcourt Street, Boston, Mass.

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